APPENDIX J

MILLENNIUM PIPELINE PROJECT - NEW YORK COASTAL ZONE MANAGEMENT POLICY CONSISTENCY DETERMINATION
March 2001

3.1.5 Impacts Of Prior Dredging Activities In Haverstraw Bay

The Federal channel through Haverstraw Bay is maintained at 32-feet below mean low water (MLW) by the US Army Corps of Engineers-New York District (USACE-NYD). The channel requires periodic maintenance dredging. In the summer of 1986, water quality was monitored during Haverstraw Bay maintenance dredging (Houston *et al.* 1992). Dredging was conducted mechanically using an open bucket with unrestricted lift speed and no silt curtains. This is a worst case example compared to state of the art dredging practices that would be used for the proposed Millennium Pipeline Haverstraw Bay crossing. Under these worst case conditions, maximum daily differences in dissolved oxygen (DO) were under 1.0 mg/l and averaged only 0.1 mg/l. The turbidity plume and suspended solids created by the dredging was greatest during flood tide. The maximum increase over ambient occurred within a radius of 500 feet, with a return to near ambient conditions between 1250 and 1500 feet from the dredge. The environmental assessment report on the Hudson River Channel maintenance-dredging program (USACE 1988) indicated that the Haverstraw Bay plume extended 750 feet from the dredge.

3.1.6 Review Of Coastal Zone Policy Consistency

1) *Restore, revitalize and redevelop deteriorated and underutilized waterfront areas for commercial, industrial, cultural, recreational and other compatible uses.*

Construction of the proposed Haverstraw Bay crossing would not involve development in deteriorated and underutilized waterfront areas, and thus this policy does not apply.

2) *Facilitate the siting of water-dependent uses and facilities on or adjacent to coastal waters.*

Construction of the proposed project crossing would not involve the siting of water-dependent uses and facilities on or adjacent to coastal waters, and thus this policy does not apply.

3) *Promote the development and use of the state's major ports as centers of commerce and industry, emphasizing the siting, in these port areas, including those under the jurisdiction of state public authorities, of land use and development which is essential to, or in support of, the waterborne transportation of cargo and people.*

Construction of the proposed Haverstraw Bay crossing would not involve development and use of any New York State major port facility. There are several public and private marinas in the general vicinity of the proposed project; however, none are involved in the transportation of people or cargo. Since no New York State major port facilities are involved with the proposed project, this policy is not applicable.

4) *Strengthen the economic base of smaller harbor areas by encouraging the development and enhancement of those traditional uses and activities, which have provided such areas with their unique maritime identity.*

Haverstraw Bay is also an Essential Fish Habitat (EFH) as designated under The Magnuson-Stevens Fishery Conservation and Management Act [(Section 305(b)(2)]. Haverstraw Bay is identified as a mixing zone which is contiguous with coastal waters which have been designated in the N.Y. Bight area. EFH applies to species for which there are approved management plans. National Marine Fisheries Service, the agency which administers the EFH program, has identified Atlantic butterfish, Atlantic herring, bluefish, red hake, summer flounder, windowpane and winter flounder as species having EFH in Haverstraw Bay. Millennium provided the FERC baseline information on these species, as well as background information on project effects (Attachment A-2). The FERC recently issued an EFH assessment which concluded that the project will not adversely affect EFH.

Located approximately 25 miles north of New York City, Haverstraw Bay extends from Stony Point south to Croton Point for approximately 6 miles, and varies in width from two miles to almost 4 miles. Much of the Bay is shallow, less than 15 feet deep at MLW, and is the widest portion of the Hudson River estuary. A federal navigation channel, maintained at a depth of approximately 32 feet below MLW is located west of the center of Haverstraw Bay.

The proposed project passes through the upper reaches of Haverstraw Bay, following a 2.1-mile route from Bowline Point on the western shore of the Bay to the Veterans Administration Hospital property on the eastern shore. Construction of the proposed project would temporarily impact the aquatic community of this significant coastal fish and wildlife habitat area within the proposed pipeline crossing.

Construction activity involves trenching, pipe fabrication, installation and backfilling operations to be conducted continuously, proceeding along the route as one unit. Trench depth in the navigation channel would be about 20 feet and 10 feet in areas outside the navigation channel. Unconsolidated sediments and subsurface soils in Haverstraw Bay require a trench side slope of 3:1 to maintain open trench requirements. During construction, the open trench would be 10 feet wide at the bottom, up to 150 feet wide at the top in the navigation channel, and up to 70 feet wide at the top in areas outside the navigation channel. Construction planning requirements will limit any open trench portion of the proposed route to approximately 1300 feet at any time. Construction of any given pipeline segment, from trenching to backfilling, will be completed within approximately two weeks (see section 3.1.4).

B. Hudson River Resources

The Hudson River is approximately 315 miles in length extending from its source at Lake Tear of the Clouds in the Adirondack Mountains to the Battery at the southern end of Manhattan Island (Limburg *et al.* 1986). The lower Hudson River, defined as that section of the Hudson River between the Battery and the Federal Dam at Troy, New York, is approximately 154 miles long. The Federal Dam, constructed in 1832 as part of the New York State canal system, forms the boundary between the tidal estuarine lower Hudson River and the riverine upper Hudson River. An estuary is defined as a semi-enclosed coastal body of water that has a free connection with the open sea and within which seawater is measurably diluted with fresh water from land drainage (Pritchard 1967). The Hudson River estuary is a drowned river valley (i.e., bottom elevation at the Federal Dam is below sea level), with saltwater intrusion (defined as the

northernmost location of 50-mg/l chloride concentration) restricted to the southern portion of the estuary. The geographical position of the salt front ranges over several kilometers during a tidal cycle.

High spring flows move the salt front down to the Tappan Zee region [mile point (MP) 27]; summer low flows allow the salt front to intrude toward Poughkeepsie (MP 71). Salinity in Haverstraw Bay generally varies between 0 and 10 parts per thousand (ppt), depending on the location of the salt front. Intrusion of salt water from the ocean brings about stratification of the estuary. Denser, more saline water follows deeper areas of the Hudson River channel. Irregularities such as sills in the river bottom or constrictions in shorelines cause changes in flow direction and velocity, resulting in mixing between fresh- and saltwater layers. The slower flows in shallow shoreline areas, often coupled with tributary inflows, bring about lower salinities in shore zones. The intrusion of salt from the ocean into the Hudson River is the primary cause of density-induced circulation in the estuary. This net nontidal movement of water seaward in the upper layer and landward in the lower layer of the salinity-intruded river affects the transport of energy, mass, and plankton through the Hudson River.

Despite past disturbances and development, Haverstraw Bay contains considerable fish and wildlife habitat, and provides the most extensive area of shallow estuarine habitat in the lower Hudson River. Extensive areas of shallow bottom create areas of estuarine tidal marshes that contain salinity-tolerant species of submerged and emergent aquatic vegetation, such as saltwater cordgrass, saltmeadow cordgrass, and spike grass. There were no areas of submerged or emergent aquatic vegetation along the pipeline route based on the site specific sampling conducted for this project.

The shallow estuarine waters of Haverstraw Bay create favorable habitat for benthic and epibenthic fauna. The benthic macroinvertebrate infauna (organisms living within the bottom sediments) feed primarily on detritus (organic materials together with associated bacteria, fungus, and other meiofauna). The distribution of macroinvertebrate infauna on a large scale is determined by salinity with oligochaete and polychaete worms being most abundant in brackish water areas such as Haverstraw Bay. Epibenthic fauna live near the surface of the bottom sediments and often migrate up into the water column at night to feed where they function as part of the zooplankton community. In Haverstraw Bay, epibenthic macroinvertebrate collections are typically dominated by mysid shrimp, especially the opossum shrimp (*Neomysis americana*). These benthic and epibenthic populations serve as important food resources for larger macroinvertebrates and many important fish species.

Haverstraw Bay provides nursery habitat for numerous fish species, including striped bass, American shad, white perch, Atlantic Tomcod and Atlantic sturgeon. Other species, including anadromous blueback herring and alewife, move through Haverstraw Bay to upstream spawning areas. Certain marine species, notably bay anchovy, Atlantic menhaden and blue crab, also use Haverstraw Bay as a major nursery and feeding area.

The shortnose sturgeon occurs only along the east coast of North America and is an important component of the fish community. It is a federally listed and New York State listed endangered species. It has been recorded as occurring from central Florida to southern New Brunswick,

Canada (Dadswell *et al.* 1984). The shortnose sturgeon generally occupies freshwater to brackish water reaches of its natal river and estuaries, remaining primarily in deep river channels. Shortnose sturgeon spawn in the upper Hudson River, returning downstream immediately afterward. Some adults may leave the Hudson over the summer, but the majority remain dispersed in the estuary during summer and fall, and then overwinter in either the Kingston or Haverstraw Bay region (Dovel *et al.* 1992, Geoghegan *et al.* 1992). Adults that will not spawn in the following spring congregate in a downstream section of the Hudson River in and around Haverstraw Bay. Adults that will spawn in the following spring are thought to migrate upstream and congregate near Kingston, New York.

With the arrival of spring, non-spawning adults disperse from Haverstraw Bay throughout the summer range of the species. Spawning adults ascend the river to spawn in the reach of river between the Federal Dam (Troy, New York) and Coxsackie, New York approximately at river mile 118. Spawning occurs from late April to early May in the Hudson River.

Juvenile shortnose sturgeon grow rapidly and gradually disperse downstream in the estuary. By late fall, most surviving juvenile fish have moved into deeper channel portions of Haverstraw Bay. Shortnose sturgeon are benthic feeders. Adults are reported to feed on insect larvae, crustaceans, and molluscs. In winter, shortnose sturgeon generally remain in deeper waters to feed, with feeding occurring on an infrequent basis.

The Atlantic sturgeon is anadromous and dependent on coastal waters. Mature Atlantic sturgeon enter the Hudson Estuary by early April before water temperatures rise above 6.1°C, followed by the mature females several weeks later (Dovel and Berggren, 1983). Spawning begins when gravid females appear in upper Haverstraw Bay (MP 38) about mid May when temperatures are approximately 12.8°C, when the salt front is in the vicinity. Females remain in the estuary 4 to 6 weeks after spawning, while males may remain in the area up to 8 months.

During spawning season, Atlantic Sturgeon migrate to deep areas of the river where they can move back and forth across the channel (Dovel and Berggren, 1983). Males in the Hudson River reach maturity at age 12, with weights ranging from 5.4 to 47.6 kg, and lengths of 1.2 to 2.0 meters. Females are older and larger when they mature, the youngest female in the Hudson was found to be 18 or 19 years old and weighed 32.6 kg. The fish contained 3.6 kg of eggs which appeared to be ripe (Dovel and Berggren, 1983). Spawning moves upriver with the salt front as the season progresses, but no further that Catskill (MP 113). Most spawning occurs between Croton Point (MP 35) and Hyde Park (MP 76) from May to August, in water over 25 feet deep. Kahnle, et al. (1998) reported spawning migration beginning in May.

Immature Atlantic sturgeon migrate downstream in the Hudson River when water temperatures drop below 20°C. By the time the water temperature reaches 9°C, most sturgeons have reached the location where they will remain until spring. Immature Atlantic sturgeon remaining in the Hudson River Estuary over the winter months usually congregate between the Bear Mountain Bridge and the George Washington Bridge in channel holes or pockets. Other Atlantic sturgeon leave the Hudson Estuary. Emigrating fish are usually between the ages of 1 year and 6 years of age (Dovel and Berggren, 1983).

Several commercially and recreationally important fisheries occur in Haverstraw Bay, including striped bass, American shad and blue crab. (See Attachment A-3 for a list of species collected during site-specific sampling). Historically, oyster beds were prevalent in brackish areas of the Hudson River including Haverstraw Bay and the Tappan Zee. However, a combination of over-harvesting, habitat alteration, and pollution led to the demise of oyster beds more than a century ago.

Haverstraw Bay also provides habitat for migrating waterfowl during spring (March-April) and fall (September-November) migrations, although the actual number of waterfowl using the area is not well known.

The bald eagle (*Haliaeetus leucocephalus*), a Federal and New York State listed threatened species, utilizes areas of the lower Hudson River estuary, including Haverstraw Bay, during winter months for feeding. The Federal navigation channel is kept open throughout the winter months to allow ships and barges access to up-river ports and terminal facilities. During recent years, primarily as a result of the successful bald eagle restoration activities of NYSDEC's Endangered Species Unit, bald eagles have occasionally been observed along the shore and on ice floes in Haverstraw Bay. Since the Haverstraw Bay pipeline crossing will be constructed during the fall months, there will be no impact to bald eagles in the Haverstraw Bay area. Potential impacts of the proposed project on the aquatic communities would be limited to the approximately 2.5 month construction period. Potential impacts during construction would include the temporary loss of benthic substrate during trenching, installation and backfilling operations, as well as potential increases in suspended sediment concentrations and turbidity.

The FERC evaluated potential project effects on the bald eagle as part of their Biological Assessment. They concluded that with implementation of their recommended Certificate conditions there would be no adverse affects which would jeopardize the continued existence of the bald eagle.

C. Site Specific Sampling

The description of Hudson River and Haverstraw Bay resources in Section B above was based on a large baseline of accumulated studies conducted in the project area over the past 30 years. The bulk of this study effort was associated with impact assessments of power plants. These studies included local sampling in Haverstraw Bay, as well as riverwide (Troy dam to Manhattan) surveys which can be used to establish the relative importance of individual segments of the estuary, such as Haverstraw Bay. In addition, studies of selected species (sturgeons, striped bass) and trophic levels (benthic invertebrates) provide a comprehensive picture of aquatic life in the Hudson Estuary.

In November 2000, a site-specific sampling program was undertaken to determine if there were any unique or special physical habitats or aquatic life conditions along the proposed pipeline route across Haverstraw Bay.

The study sampled fishes, macroinvertebrates and included an examination of substrates along the route. The study also included a diver reconnaissance of the entire route. (See Attachment

A-3). The study results were compared with the extensive baseline of information which was used to characterize Haverstraw Bay.

The fish community along the pipeline route was a typical mix of freshwater, estuarine and marine forms found in the lower Hudson River during fall (Attachment A-3, Tables 1 and 2). The fish sampling produced 20 fish species, as well as blue crab, representing various life history strategies. Among the 20 species, estuarine residents and marine forms which typically enter the estuary during late summer and fall were relatively common. One shortnose sturgeon was collected near the east end of the pipeline route. This assemblage of fishes shows that the project area is providing habitat for the commonly occurring species in Haverstraw Bay.

The benthic grab sampling produced low numbers of macroinvertebrates as expected (Attachment A-3, Table 4), and good samples of the substrate along the pipeline route. On-board examination of the substrate showed that fine-grained material was the predominant bottom material along the route. The grab samples produced a few oyster shells, as did the bottom trawls for fish. The fine-grained material varied from loose silt to clay, with some sand. Qualitative sampling with a fine mesh sieve revealed the presence of large number of oligocheate and polycheate worms which are abundant throughout Haverstraw Bay.

The diver observations confirmed that the pipeline route does not contain any unique habitat features and is similar to the vast majority of Haverstraw Bay. No major obstructions or shipwrecks were encountered along the pipeline route.

The site-specific studies confirmed that the habitat and aquatic life along the proposed pipeline route is typical of Haverstraw Bay. The percentages of the area of Haverstraw Bay and similar contiguous habitat that would be disturbed, as presented in Section 3.1.4, should be considered representative of the spatial effects associated with pipeline construction. The following section addresses specific effects, in particular the temporal aspect of the disturbance.

D. Project Effects on Significant Habitat

The standard for protecting significant habitat

Once an area is designated as a significant coastal fish and wildlife habitat, Policy No. 7 of the CMP applies. The DOS has chosen to evaluate consistency with this policy by utilizing habitat rating forms and the "habitat impairment" test set forth by New York State Department of Environmental Conservation (the "DEC") in guidance documents. Specifically, the DEC's guidance documents state that (1) "[a] habitat impairment test must be met for any activity that is subject to consistency review;" and (2) the "test that must be met is as follows - In order to protect and preserve a significant habitat, land and water uses or development shall not be undertaken if such action would: destroy the habitat; or, significantly impair the viability of the habitat." Habitat destruction is defined as "the loss of fish or wildlife use through direct physical alteration, disturbance, or pollution of a designated area or through the indirect effects of these actions on a designated area." Significant impairment is defined as "reduction in vital resources (e.g., food, shelter, living space) or change in environmental conditions (e.g., temperature, substrate, salinity) beyond the tolerance range of an organism," with indicators being reduced

carrying capacity, changes in community structure, reduced productivity, or increased disease/mortality.

As is detailed below, the pipeline construction through Haverstraw Bay will create only transient, localized and temporary effects; thus there will be no "loss" of habitat. Further, there will be no net effect on overall populations, productivity, or species diversity; therefore, there will be no "significant impairment" of habitat.

2. Project impacts

The relationship between the size of the area affected by the pipeline crossing and the total available habitat in the estuary is an important general consideration for the following discussion of specific physical processes and ecological functions. The estuarine environment of the lower Hudson River is influenced by forces beyond the boundaries of the estuary or the designated significant habitat. These forces control the processes which maintain physical habitat and the daily variations in many of the important habitat characteristics such as water circulation, flushing rates, erosion and sedimentation, and the chemical parameters associated with water mass movements. Many of the biological characteristics of the estuary are strongly influenced by the migratory behavior of many of the most abundant species in the estuary. In addition, the designated significant habitat in Haverstraw Bay is only a portion of a larger area which includes Croton Bay and Tappan Zee south to Piermont Marsh. There is similar functional habitat throughout this larger area (Buckley 1979), thus it represents the appropriate baseline for the relationship of the pipeline effects to available habitat.

The footprint of the dredged area is 0.2% of the designated significant habitat in Haverstraw Bay and 0.08% of the contiguous functional habitat in Haverstraw Bay, Croton Bay and Tappan Zee. The total area of influence of pipeline construction includes the dredging footprint and the area which experiences increased sedimentation from dredging and backfilling. The sedimentation area is defined by the extent of the turbidity plume, which is defined as the area within which the suspended solids concentration may be increased by 35 mg/l above ambient. The total area of influence is 1.2% of the designated habitat and 0.4% of the contiguous functional habitat

Pipeline construction will have a temporary effect on very small portions of the designated habitat and the total available functional habitat. Because the construction activities occupy a very small portion of the water column and estuary bottom, and the effects are limited to temporary disturbance and subsequent restoration of the substrate, there is no mechanism which could cause a significant change in the physical, biological and chemical characteristics of Haverstraw Bay. As shown by the site-specific sampling and diver reconnaissance of the pipeline route there are no special habitat features which could not recover from the disturbance due to dredging. In addition, because no structure will remain in the water after construction, there will be no long-term effects on physical, biological and chemical parameters that define the habitat.

Physical Effects

Living space includes the river bottom (substrate) and the water column. Benthic life lives buried in the substrate (infauna) or in close association with the surface of the substrate (epibenthos). Fish occupy the water column, but are often in close association with the substrate for feeding and reproduction. Infauna use only a small depth zone, generally on the order of a few inches and remain in one location, unless natural or human induced factors cause a disturbance to the substrate. Epibenthos and fish are mobile and change their location in response to many environmental factors such as water mass movement, temperature, salinity and food density.

Living space will be unchanged in the long term by pipeline construction. During dredging and pipe placement the physical habitat will be disturbed, but the total living space will actually expand due to the deepening of the trench. Following backfilling and natural restoration of the substrate, the living space in Haverstraw Bay will be the same as before construction.

Circulation, flushing and tidal amplitude in the Hudson River estuary are controlled by river discharge and tidal flow. These water mass movements interact so that circulation, flushing rates and tidal amplitude vary in accordance with predictable changes in tidal flow and the less predictable changes in river discharge caused by climatic conditions. These physical parameters would not be affected by the pipeline because the construction activities would have no influence on the forces which control these parameters. During construction, the physical equipment in the river would have no more effect on water flow than a large ship. After construction is completed, there will be no structures in the river which could influence water flow.

Turbidity will be increased by dredging and backfilling operations in the Hudson River, with an attendant increase in sedimentation in the vicinity of the trench. Dredge plume modeling (conducted by GAI) was used to estimate increases in suspended solids, and the thickness of the sediment deposition that would result from dredging and backfilling the pipeline trench. The model results were presented on pages 22 & 23 and summarized in Table 2. A review of the modeling methodology and results conducted by the Corps' Waterways Experiment Station showed the conservative nature of these analyses.

Water temperature will not be influenced by the pipeline because the construction will not influence the factors which determine water temperature in the estuary. Construction activities will neither add to, or extract heat from, the water, nor will these activities influence water mass movements which can affect temperature distributions in the Bay.

The shape (morphology) and depth of the Bay will be altered on a temporary basis, but there will be no change in these characteristics in the long term. Dredging will temporarily deepen the Bay in the footprint of the trench and sedimentation will decrease depths slightly where there is an accumulation of material in the near vicinity of the trench. Backfilling will restore the excavated material to the trench and natural processes of scour and deposition will return the trench surface and the adjacent substrate to its original contours. The forces which control scour and deposition will not be altered by pipeline construction; thus these forces will begin to act on the minor changes to the substrate immediately after construction is completed. The shape and depth of the

Bay in the pipeline corridor will return to preconstruction conditions quickly because scour and deposition work to maintain the morphology of the Bay in a long-term equilibrium.

Based on analyses of core samples and underwater observations, substrate in the trench footprint is composed primarily of silt with some fine sand. The substrate is generally similar along the length of the trench and there was no layering of the sediments over the depth of the trench. Excavation of the substrate will remove the material from its existing position. The material will be stored in barges and backfilled in the trench. Because the substrate material is generally uniform over the length and depth of the trench, the substrate will be the same after construction.

The backfilling operation will create an uneven bottom at the substrate surface due to bulking of the sediments caused by the excavation and the uneven distribution of material as it redeposits in the trench. Because the sediment is fine-grained, the sediment is expected to spread rather uniformly in the trench. Natural scour and deposition would smooth the remaining unevenness at the surface of the trench and the adjacent areas which experienced increased sedimentation. In the process of smoothing the substrate surface, there would be a sorting of sediment particles which would produce a substrate surface similar to existing conditions.

There is no rooted vegetation or physical structures along the pipeline route that would be disturbed by pipeline construction.

There would be minor, temporary, localized changes in erosion and sedimentation rates, but no long-term effects on these processes which could affect Haverstraw Bay. Because dredging and backfilling would not change the quantity of sediments already in the estuary, there would be no significant changes in sedimentation rates. Similarly, the construction activity does not introduce a mechanism to significantly modify erosion rates. Following completion of each segment of the pipeline construction, there would be a re-distribution of the sediments which did not redeposit in the trench. In a short period of time the Bay substrate would reach a new equilibrium in which the trench footprint would be indistinguishable from the surrounding substrate.

Biological Effects

The effects of pipeline construction on living resources would be a temporary reduction of benthic infauna and some epibenthos in the footprint of the trench and a temporary redistribution of epibenthos and fishes during construction. The vast majority of Haverstraw Bay and the contiguous functional habitat in Croton Bay and Tappan Zee would not experience any effects on living resources. Because the area affected is very small and because the effects are temporary, there is no mechanism for change which could alter the community structure or the relationships built on that structure. The physical habitat after recovery would be the same as pre-construction conditions. There would be no new habitats created or species lost from the community which could bring about a change in species diversity.

Rapid recovery of the disturbed habitat would occur because the organisms present (benthos and fish) are adapted to living in highly variable and naturally disruptive environments. Oliver et. at. (1977) documented that shallow water habitats experiencing natural disturbances recover more quickly from dredging and dredged material disposal than deeper, more stable environments.

Haverstraw Bay is typical of a shallow estuarine environment that experiences natural disturbances.

Food chain relationships and predator/prey relationships would not be altered because there would be no significant change in the population size of any species in Haverstraw Bay as a result of pipeline construction. The very small temporary reduction of benthic infauna and epibenthos directly due to dredging would not alter feeding relationships, which are ecosystem wide characteristics. The increase in mortality represented by dredging would be offset very quickly by an increase in survival in the benthos. Restoration of the physical habitat would begin immediately after backfilling and would renew the former benthic substrate. Because this habitat would not have an existing benthic community, one would expect increased survival of those individuals which recolonize the area from adjacent unaffected substrate. Epibenthic organisms would return to the trench footprint soon after backfilling, providing a food resource for fish which may enter the area.

The physical characteristics (meristic features) of the living resources of Haverstraw Bay would not be altered by the pipeline project because these characteristics are not affected by minor, temporary changes to the habitat of the living resources. Changes to physical characteristics are generally brought about by major changes to the living conditions of organisms acting over a long period of time.

The behavioral and migratory patterns of the organisms living in Haverstraw Bay occur in response to a combination of innate behavior and cues from the environment. Migration and habitat selection are innate, but the timing of migration or the selection of habitat on a day-by-day basis is controlled by water temperature, salinity, food density and potentially many other factors. The effects of pipeline construction would not significantly alter the environmental cues to which organisms respond. The habitat disturbance associated with dredging would cause fish to flee the immediate area of dredging, but the increased turbidity and the presence of displaced benthic organisms may attract fish to the periphery of the plume to take advantage of increased food density. These changes in behavior represent minor, short-term effects on behavior which would cease when the project is completed.

Migratory behavior is important for many fish, particularly during late winter and early spring. Migratory species must reach upstream spawning areas and be able to migrate downstream to complete their reproductive cycles. The construction sequence will limit dredging and backfilling to approximately 10% of the overall river width during any two week interval. This approach will provide adequate uninterrupted migratory pathways for fish during the fall.

In its EFH assessment, the FERC evaluated the effects of increased suspended sediment concentrations, increased sedimentation and the potential for effects related to the resuspension of contaminants contained in the sediments. With regard to these potential effects, the FERC found that impacts would be minimal due to the temporary nature of the effects, the small area effected, the avoidance behavior displayed by fish, the limited population segment exposed to the effects and the recolonization of the habitat that would occur when the construction is completed. The FERC concluded that there would be no substantial adverse impact (individual

or cumulative) on EFH in Haverstraw Bay. This conclusion can be reasonably extended to all aquatic life in Haverstraw Bay.

Chemical Effects

The levels of the chemical parameters such as dissolved oxygen, carbon dioxide, acidity, dissolved solids, nutrients, organics, salinity and pollutants are controlled by processes that are not specific to the project area, with the possible exception of pollutants in the sediments. The distribution of the chemical parameters are controlled by the water mass movements under the influence of river discharge and tidal flow. The pipeline construction will not alter the existing pattern of water mass movements. A tidal excursion in Haverstraw Bay is approximately four miles, thus the majority of water within the six-mile designated habitat would be exchanged during each tidal cycle. In addition, the water movement would cause extensive mixing, which limits the potential for localized water quality conditions.

As discussed in Section 3.1.5, the Corps monitored the water quality during channel maintenance dredging in 1986 in Haverstraw Bay. Under worst case conditions of open bucket dredging and unrestricted lift speed, reductions in dissolved oxygen were less than 1mg/l and that suspended solids concentrations returned to near ambient conditions between 1250 and 1500 down current from the dredge.

The sediments were tested for the presence of contaminants to determine the potential for the release of pollutants during construction. Contaminant levels were very low and no PCBs were found over the length and depth of the trench. Disturbance of the sediments would resuspend a small portion of the contaminants in the dredged material, but the vast majority of the contaminants would be returned to the trench during backfilling. The contaminants in the suspended sediments which are carried beyond the trench footprint would settle to the bottom in the near vicinity of the trench. Because the project will not add any chemicals to the water, the effect of pipeline construction will be limited to a localized redistribution of the contaminants which are already present in the sediments. Although the dredging and backfilling would redistribute some contaminants, it is also likely that some contaminants which are currently near the substrate/water interface will be buried by the backfilling so that they are below the zone of biological activity. On balance, it is likely that more contaminants would be redeposited below the level of biological activity in the substrate than would be redistributed by the dredging and backfilling operations.

Ecosystem Effects

In designating Haverstraw Bay as Significant Coastal Fish and Wildlife Habitat, the area was characterized as having low habitat diversity, but good quality despite extensive previous disturbances (NYSDOS 1990). Low diversity reflects the fact that there are generally uniform habitat conditions throughout this broad area of the estuary. As discussed above, the functional habitat extends beyond the designated habitat.

The values of Haverstraw Bay were established through a variety of sampling programs on the lower Hudson River starting in the late 1960's. These programs were designed primarily to

assess power plant impacts, but in order to perform these assessments an extensive sampling program throughout the estuary was needed to establish baseline conditions. These data permit a comparison among segments of the estuary, which over time has shown the importance of Haverstraw Bay as nursery and overwintering habitat. In addition, these studies provide a long-term database on the seasonal occurrence of various life stages of important fish species, which can be used to establish a dredging window. The power company-sponsored studies are supplemented by many other study programs of specific areas and selected species (shortnose sturgeon for example) providing additional information to establish the importance of Haverstraw Bay.

LMS Engineers was directly involved in many of these studies beginning in the 1960's and has assimilated much of the total information base for various impact assessments. LMS' long-term experience and familiarity with and accumulated knowledge of the Hudson Estuary study programs is the basis for the evaluation of the effects of pipeline construction.

The site-specific sampling and diver observations for this project confirm that the pipeline route in Haverstraw Bay is typical of the designated habitat and the contiguous functional habitat. There are no unique features or functional values associated with the habitat along the pipeline route. The temporary loss of the functional value of a small percentage of this habitat would not have significant effects on the living resources of Haverstraw Bay. The sequential construction of pipeline segments over a 2.5 month interval will result in significant restoration at the initial segment before the last segment is started.

The evaluation of the significance of the effects of pipeline construction must consider the process and rate of habitat restoration. If the habitat's functional value is restored in a short time interval (relative to the life spans of the components of the biological community), then the effects would not be significant in a short- or long-term sense. There are no mechanisms which would cause effects beyond the localized effects in the vicinity of the pipeline route. As discussed above, none of the physical, biological or chemical parameters would be altered to a degree that would bring about long-term changes to the ecology of the Hudson River. In fact, the effects that will occur will be very limited spatially and temporarily so that the physical, biological and chemical processes of the estuary would continue unaltered during and immediately after construction.

Habitat restoration following dredging has been documented for estuarine environments, such as Haverstraw Bay. Studies conducted at the Passenger Ship Terminal (PST) on the West Side of Manhattan Island have shown rapid recovery of the benthic and fish communities following dredging. PST is dredged annually to remove an accumulation of 4 to 6 ft of soft sediment. Sampling of benthos and fish before and after dredging showed that the abundance of these organism groups were as great or greater than in nearby undredged areas. These data, which showed habitat recovery in less than one year, are relevant to Haverstraw Bay because they involved a similar fine-grained substrate and similar benthic and fish species.[2]

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[2] These studies were conducted originally for the proposed Westway Project. The sequential sampling for Westway provided before and after, as well as reference station data, with regard to the effects of annual dredging. The data were summarized for an Environmental Impact Statement which was never

In 1988, NYSDEC published its draft assessment of a proposed hard clam transplant from Raritan Bay to other New York waters. This assessment is relevant to the Millennium Pipeline because the clams would be harvested with a hydraulic dredge, which causes a disturbance of the benthic habitat in the process of collecting the clams. The clam dredge uses high pressure water jets to loosen the bottom to a depth of up to 24 inches; which is then raked to a depth of 3 to 4 in by the device. The clams are collected in a screened box and most of the sediment and small organisms are redeposited on the bottom. The dredge is approximately 28 in wide, but repeated passes of the dredge across the bottom can disturb a substantial area over many days of fishing. The bottom disturbance increases turbidity, has the potential to resuspend contaminants contained in the sediment, causes a loss of benthic life and displaces mobil aquatic life in the path of the dredge. Those are the same effects associated pipeline construction. NYSDEC concluded that the hard clam transplant program using a hydraulic dredge did not constitute a significant adverse impact to aquatic life.[3]

The former channels and existing ship channels in Haverstraw Bay are direct evidence of the restoration of habitat after dredging in the designated area. Shipping channels represent a substantially greater level of habitat disturbance than dredging for pipeline placement because ship channel dredging not only disturbs the substrate, but removes the material, altering water depth, current regimes, and substrate type.

Channels extending from the shoreline to the main channel for former brick making operations and to accommodate caisson construction for the Tappan Zee Bridge have filled in and provide habitat for aquatic life equivalent to undredged areas of the Bay. These former channels have filled naturally so that they match surrounding water depths and substrate type.

U.S. Gypsum maintains a 31 ft deep channel extending from the northern end of the Federal channel to its facility on the west shore at Stony Point. This channel intersects the Federal channel very close to where the Millennium pipeline will cross the Federal channel. The U.S. Gypsum channel has been maintained for many years through periodic dredging, with the sediment disposed of outside of Haverstraw Bay. Within the period of time that this channel has been present, striped bass and shortnose sturgeon have recovered from historically low levels and the equatic community of Haverstraw Bay has flourished. Previous assessments associated with permitting of this channel did not find significant adverse impacts.

The main ship channel is dredged to maintain adequate depth for shipping (last dredged in 1986). This channel is an important component of the functional value (overwintering) of the designated

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published. The data on which these observations are based are available from Lawler, Matusky & Skelly Engineers, who conducted these studies.

[3] New York State Department of Environmental Conservation. SEQR Negative Declaration. Notice of Determination of Non-Significance, January 1988.

habitat, even though the channel is repeatedly dredged. Previous maintenance dredging of the channel, which involves a major portion of the designated area, has not adversely affected its overwintering value. The pipeline crossing would temporarily affect only a 150-ft wide segment of the channel during a non-winter period. Since dredging the entire length of the channel did not adversely affect the functional value, dredging of a 150-ft wide segment will have no adverse effects.

The nursery habitat provided by Haverstraw Bay has high ecological value because the combination of a broad expanse of shallow productive substrate in a salinity zone appropriate for the juveniles of migratory marine and estuarine species occurs rarely along the Atlantic Coast. The presence of a deep channel for overwintering in this same salinity zone adds ecological value to this area. The species which depend on this habitat for all or a portion of their life cycles, have generally maintained substantial population levels despite environmental changes, pollution effects, and overfishing. The endangered and special concern species (sturgeons) which occur in this area, while experiencing reduced population levels over broad areas of their range, maintain substantial populations in the Hudson Estuary. Habitat loss in the vicinity of Haverstraw Bay is not recognized as a factor in the special status of these species.

Many of the abundant and ecologically important species of fish and invertebrates (particularly blue crab) which use the designated habitat rely on other extensive areas of habitat in the estuary and marine environment. Their population levels can be controlled by environmental factors and habitat-related effects occurring outside of the designated habitat. The current status of the habitat in Haverstraw Bay can be characterized as good with no significant threats to the quality and quantity of habitat.

Human use of the designated habitat includes extensive recreational activity, primarily boating and fishing, industrial activities such as shipping and power plant cooling, and assimilation of municipal waste discharges. These uses will continue in the future probably at somewhat increased levels. As long as the quantity of physical habitat remains undiminished, the natural processes which created and maintain the productivity of the designated habitat can be expected to maintain the current population levels of the important living resources of the estuary.

While the designated habitat may be irreplaceable in certain respects, the functional values of the habitat will be restored after they are temporarily reduced by pipeline construction. None of the habitat will be physically destroyed. The restoration of the habitat through backfilling of the trench and natural processes which will reconstitute the substrate will assure maintenance of the existing habitat and its functional values in the long term.

As discussed previously, the total area influenced by dredging is approximately 1.2% of the designated habitat. As discussed above, contiguous functional habitat extends well beyond Haverstraw Bay and includes Croton Bay (also designated habitat) and Tappan Zee south to Piermont Marsh (non-designated habitat). Buckley (1979) characterized similar physical habitat throughout this large area, with no significant differences which would distinguish an area the size of the trench from other areas. In fact, it is the broad expanse of similar productive habitat which is the most important factor in the designation of Haverstraw Bay as significant habitat.

LMS' experience with sampling aquatic life and physical parameters in Haverstraw Bay, as well as the recent site-specific sampling, confirms this general observation.

The distribution of important fish species in Haverstraw Bay and similar contiguous habitat is, to a great extent, determined by the seasonal movements and migrations of these species. The occurrence of important species in the area of the pipeline route is determined by the innate migratory behavior of these species and other factors such as temperature, salinity, food density and schooling behavior which control daily activity. There are no features of the pipeline route which could take precedence over these natural factors in determining distribution in Haverstraw Bay.

Benthic infauna lack mobility; thus they generally do not select habitat or make daily adjustments in location. These organisms or their early reproductive stages settle and establish themselves when they encounter suitable habitat as they are moved about by water mass movements. The physical conditions of the substrate on the pipeline route are similar to surrounding areas of the Bay. Thus the distribution and abundance of benthic infauna on the route would be similar to surrounding habitat areas.

As discussed above, innate behavior and environmental factors determine the occurrence of fish in the vicinity of the pipeline route. Many important species which use Haverstraw Bay are present on a seasonal basis that varies with the life stage of most species. Migratory species such as American shad, blueback herring, alewife, rainbow smelt, striped bass, shortnose sturgeon and Atlantic sturgeon pass through the Bay (or migrate from the Bay) from late winter through spring enroute to upstream spawning areas. These adults return downstream through the Bay in late spring. The adults of some species such as shortnose sturgeon may remain in the Bay for much of an annual cycle. The early life stages of the fish spawned upstream will move into Haverstraw Bay throughout summer and fall.

The early life stages of striped bass enter the Bay in early summer and remain in the nursery habitat provided by the extensive shallows and shoals. Juvenile sturgeons would be present over a long period of time (years) because of their slow maturation.

Resident species which are important in the Bay include white perch, Atlantic tomcod and hogchoker. These species are abundant in the Hudson Estuary, representing a significant portion of the fish biomass. Juveniles through adults of these species are present throughout most of the year. Adults of these species move upstream of Haverstraw Bay to spawn during winter (tomcod), spring (white perch) and summer (hogchoker), and then redistribute themselves in the estuary. Early life stages of tomcod are present in spring due to the winter spawning of this species. Early life stages of white perch and hogchoker are present in summer.

The resident species and the adults and juveniles of striped bass and sturgeons overwinter in Haverstraw Bay and adjacent areas. Their distribution within Haverstraw Bay during winter can vary depending on temperature and salinity conditions. The presence of some of these species in the navigation channel is controlled primarily by innate habitat preferences.

The Millennium Pipeline construction across Haverstraw Bay has been designed to minimize effects on the significant habitat. There will be no loss of habitat quantity and only a temporary reduction of functional value during and immediately after construction. Restoration of the disturbed area through backfilling and natural processes will result in a complete restoration of the functional values of the designated habitat. The construction activities will not alter the physical, biological and chemical processes of Haverstraw Bay, thus the habitat will recover as it has from previous dredging operations which were not designed and conducted with the care of the Millennium Pipeline Project.

Measures to protect resources and mitigate potential adverse effects during construction include the use of closed 'environmental' buckets during trenching and silt curtains, as necessary, during backfilling operations in the channel. Adherence to the construction window and conditions for dredging set forth by U.S. Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS) and NYSDEC will ensure that no direct impacts occur to significant coastal habitat.

D. Endangered Species

The shortnose sturgeon (Acipenser brevirostrum) is the only Federally or state listed endangered or threatened species in the Hudson River in the vicinity of the proposed Millennium pipeline crossing. However, there is mounting evidence that the Atlantic sturgeon (Acipenser oxyrinchus oxyrinchus) has experienced a significant decline in abundance in the Hudson (Kahnle et al. 1998; Peterson et al 2000). Therefore it is possible that Atlantic sturgeon could be listed in the future. The following discussion addresses the question of taking under the Federal Endangered Species Act (ESA), but the technical rationale presented applies to both species of sturgeon in the Hudson.

Section 9 of the ESA prohibits the "taking" of any endangered species of fish and wildlife. [ESA §9(a)(1); 16 USC § 1538 (a)(1)]. The USFWS has promulgated regulations also prohibiting the "taking" of any threatened species of wildlife (50 CFR §17.31). Similarly, the NMFS promulgated a regulation that forbids the taking of any threatened species of fish or wildlife for which the ESA §9(a)(1) prohibitions have been applied by regulation. [50 CFR §222.301(b)].

The term "take" is defined in the ESA as meaning to harass, harm, pursue, hunt, shoot, kill, trap, capture, or collect, or attempt to engage in any such conduct. [ESA §3(19); 16 USC §1532(19)]. Both the USFWS and NMFS have in turn defined the word "harm", within the context of ESA Section 9, as an act which actually kills or injures fish or wildlife, including significant habitat modifications or degradation which actually kills or injures fish or wildlife by significantly impairing essential behavioral patterns including breeding, spawning, rearing, migrating, feeding, or sheltering [50 CFR §17.3, 222.102] (emphasis added). It is clear from these definitions and accompanying agency discussions, that an actual injury to a listed species must be found in order for a "taking" to have occurred under ESA Section 9 and that these regulations do not create liability for hypothetical, speculative or conjectural injury. [See 46 FR 54748 (Nov. 4, 1981); 64 FR 60729 (Nov. 8, 1999)].

To determine whether a certain act will constitute harm, the act must result in, or be reasonably certain to result in, the death or injury of listed fish or wildlife. (See 64 FR 60729). Thus, a causal link or relationship between a specific activity or series of activities and the injury or death of listed species must be demonstrated, in order for an act to raise to the level of harm. (See 64 FR 60728). To demonstrate such a causal link can be more challenging in situations where the nexus between a cause and effect are nebulous or where there is a substantial lag period between the cause and effect, as in habitat modification.

The ESA and corresponding regulations are unambiguous that habitat modification or degradation alone, is not a taking pursuant to ESA Section 9. To be subject to Section 9, the modification or degradation must be significant, must impair essential behavioral patterns and must result in actual injury to a protected species. The occurrence of a taking would depend on situation-specific conditions and can be shown through a variety of methods and types of evidence. These include, but are not limited to, field surveys and assessments, populations studies, laboratory studies, model based procedures, information and data in the scientific literature, or expert witness testimony consisting of inferences or opinions drawn from facts pertaining to a given act(s) of habitat modification or degradation (64 FR 60728).

Based upon this analytical framework, it is not anticipated that the Millennium Pipeline Project will result in an ESA Section 9 take of any listed species of fish or wildlife.

The construction of the Millennium pipeline crossing in Haverstraw Bay (see p. 8 for a description of the crossing plan, Figure 2 for a location map) does not constitute a "taking' because there would be no loss or harm to individual sturgeon, no loss of physical habitat and no long-term loss of the functional value of the habitat involved in pipeline construction. The construction equipment operating in the river will not kill or harm sturgeon and the temporary habitat disturbance related to the construction would not impair essential behavioral patterns which would cause injury to individual sturgeon. In fact, both species of sturgeon show a preference for deep channel habitats during all life stages (Bain 1997). Most of the deep channel in the Hudson is subjected to periodic maintenance dredging, thus sturgeon in the Hudson have been exposed to a repeated habitat disturbance much more extensive than the dredging and backfilling associated with pipeline installation. Moreover, estuarine fish have behavioral or physiological adaptations to temporary high concentrations of suspended sediment in order to survive short-term conditions caused by natural floods (Waters 1995).

There is extensive experience with dredges of the type proposed for pipeline construction (closed clamshell bucket) that shows that fish are very rarely enclosed in the bucket during dredging and subsequently dumped in the scow which will retain the dredged material. The localized disturbance caused by the dredging and the relatively slow movement of the dredge bucket allows free swimming fish to avoid capture in the bucket. Observations of the discharge of individual bucket loads of dredged material into scows shows that fish are rarely picked up by a clamshell bucket dredge. Slow moving life stages of fishes, such as eggs and larvae may be vulnerable, but sturgeon spawn well upstream of Haverstraw Bay (Bain 1997), thus their eggs and larvae would not be exposed to such dredging.

The pipeline construction will not permanently remove any habitat from use by sturgeons in the Hudson. The pipeline will be placed in a trench excavated in the bottom of the river which will be backfilled after pipeline placement with river sediment collected in barges. The backfilling in combination with natural processes of sediment scour and deposition will return the disturbed area of river bottom to its original contours and substrate type. The area of river bottom and volume of water at the construction site will be the same after construction as it was before construction. In addition, because there will be no structures remaining in the water after construction, the tidal current velocities will be the same as preconstruction conditions. This ensures that the physical and chemical water quality conditions that are controlled by water mass movements will be unchanged.

The channel portion of the proposed pipeline route serves as general living space for sturgeons, but has no known functional value that is greater than the adjacent channel areas. The channel in Haverstraw Bay is recognized as wintering habitat for juvenile and adult shortnose sturgeon and juvenile Atlantic sturgeon. Bain (1997) shows that shortnose use approximately 6 miles of channel, including Haverstraw Bay, and Atlantics approximately 31 miles of channel during winter. Adult shortnose sturgeon also use a portion of the river channel near Kingston for overwintering.

Dredging for the pipeline crossing will disturb an area of the channel bottom for approximately 900 ft long by 150-ft wide and create sediment deposition over a larger area (see p. 22 and Table 2 for the dimensions of the area affected by the turbidity plumes). The turbidity plume associated with backfilling the trench in the channel would be 500 ft wide by 400 ft long, but would last for only 30 minutes. There would be two backfilling operations per day in the channel.

The channel area disturbed for pipeline installation is a very small portion of the available channel habitat used by sturgeon in the Hudson. With construction occurring within the window designated by the agencies the work would be completed before there would be a concentration of sturgeon in Haverstraw Bay for overwintering. The disturbed area would be recovering its benthic community, but it would have still reduced food resources for sturgeon during the first winter after pipeline installation.

Shortnose sturgeon are reported to cease feeding in freshwater during winter, but to continue feeding during winter in the saline portions of estuaries (Dadswell 1979). There is little information on feeding habits in the Hudson. Overwintering sturgeon in Haverstraw Bay would be near the saltfront, which would vary in location depending on freshwater runoff conditions. The extent to which sturgeon would feed during overwintering is uncertain, but they are capable of surviving with little or no feeding for up to six months. The diminished food supply in the 150-ft swath of the channel is expected to recover to pre-dredge conditions by the end of the summer after construction.

The effects of dredging on aquatic habitat and its use by sturgeon have been previously tested as a result of maintenance dredging of the shipping channel in the Hudson. In contrast to the pipeline installation, which will restore the bottom to its original contours with native sediment, channel maintenance dredging removes accumulated sediments, which deepens the channel and

begins a cycle of sediment build-up which will continue until the next episode of maintenance dredging. The channel benthic habitat is thus maintained in a state of long-term flux. Also in contrast to the pipeline installation, maintenance dredging is a recurring habitat disturbance affecting a much longer area than the pipeline footprint. Whereas the pipeline installation is a one-time effect on a small segment of the channel (150-ft wide), maintenance dredging would affect a reach involving many miles and up to the full width of the channel each time this dredging occurs.

The fact that the shortnose sturgeon population has apparently increased since the last episode of maintenance dredging in Haverstraw Bay (see discussion below) is strong evidence that dredging in this habitat is not an adverse impact. The decline in Atlantic sturgeon is reported to be primarily the result of overfishing, and dredging has not been implicated in the decline of this species. In addition to the channel maintenance operations, the shoal habitat has been previously disturbed for the installation and use of channels which connect with the main shipping channel. These channels, some of which are no longer maintained, apparently have not adversely affected habitat use by sturgeon in the Haverstraw Bay area.

The shortnose surgeon population in the Hudson has been estimated at 38,024 adults (Bain et. al. 1995). There is no indication of a decline in this stock since intensive studies of this population began in the 1970's. In fact, the 1995 estimate suggests a 2 to 4 fold increase in the adult population. A more recent estimate indicates a total population (adults and juveniles) in excess of 61,000 individuals (Bain quoted in Washington Post, October 2, 2000). While the population is listed as an endangered species, it is not in imminent danger of extinction in the Hudson River. Activities such as dredging and backfilling for pipeline installation, while they are an intrusion into a very small portion of sturgeon habitat, do not represent a level of effect which could alter the status of this robust population.

As noted above, with regard to the Atlantic sturgeon, while the population is not listed as endangered or threatened, the observed decline in the stock is cause for concern. However, there is substantial data which suggests strongly that this population decline is due to overfishing and not to habitat disturbance or loss. Adult Atlantics spend the bulk of their life in the sea and while in freshwater for spawning are primarily upstream of the pipeline crossing location and have completed spawning (spring) and left the river by fall. The overwintering juveniles would be present during construction, but the pipeline would only affect a 150-ft wide segment of the 31 mile overwintering reach.

Pipeline installation in the channel represents a very small, one-time physical disturbance of habitat. Based on the lack of significant effects from maintenance dredging of the main shipping channel, pipeline installation in the Hudson River does not represent a taking with regard to the ESA. The crossing of the Croton River is in a location which does not contain sturgeon habitat and the use of the directional drill method ensures that there will be no adverse impact on aquatic resources (see Section 3.2). Long-term maintenance of the sturgeon populations is not threatened by the proposed construction because there is no loss of the long-term functional value of the habitat which could harm sturgeon. There is no evidence that sturgeon have been harmed by dredging in the past and, in fact, dredging may help maintain the preferred habitat of sturgeon in the Hudson.

Notwithstanding this analysis, the FERC, in its Biological Assessment, concluded that the project may result in direct and indirect impacts on short nose sturgeon, including a 'take' as defined in the ESA. The FERC further stated that NMFS could issue an Incidental Take Statement which would include reasonable and prudent measures to minimize the take of shortnose sturgeon. With implementation of such measures, the FERC believes there would be no long-term or cumulative effects on shortnose sturgeon. Millennium agrees with the conclusions reached by the FERC and does not object to the proposal put forth by the FERC that an Incidental Take Statement and permit be issued relative to the Project to accommodate the unlikely mortality of a few shortnose sturgeon during the construction cycle.

8) *Protect fish and wildlife resources in the coastal area from the introduction of hazardous wastes and other pollutants which bio-accumulate in the food chain or which cause significant sub-lethal or lethal effect on those resources.*

BMPs addressing shore zone and offshore construction activities will be prepared and followed during construction. The BMPs will include practices to reduce the possibility for accidental release of small amounts of wastes and materials to the river waters from the construction vessels due to poor maintenance and housekeeping practices. Proper lubrication and fuelling procedures will be followed with provisions made for leak and spill containment, and diligence will be exercised to oversee waste management practices.

Potential impacts to fish and wildlife resources may include exposure to contaminants released from sediments during trenching and backfilling operations. Sediment quality sampling conducted along the proposed pipeline-crossing route indicated that the sediments contain trace amounts of a variety of metals and semi-volatile organic compounds; however, potential impacts related to the contaminated sediments will be minimized by employing BMPs during trenching and backfilling operations. Measures to mitigate this impact include environmental-bucket dredges, and storing dredged material in barges. Additional BMPs that are applicable include the use of silt curtains, as necessary, and a dredging operations monitoring plan. The dredging operations monitoring plan will be used during construction to monitor the efficacy of the BMPs and to adjust the use of the BMPs to mitigate adverse environmental impact to the extent practicable. By employing these management measures, the proposed project would be consistent with this policy.

Predicted aqueous concentrations of chemical constituents detected in the sediment at the location of the visible plume are presented on Table 3 (Attachment A-1). None of the predicted aqueous concentrations exceed NYSDEC standards or the USEPA's Marine Acute Criteria. Therefore, exceedances of the NYSDEC standards and the USEPA Marine Acute Criteria are not expected beyond the predicted visible plume which has a maximum length dimension of 460 feet for each of the four construction components described in Section 3.1.4.

9) *Expand recreational use of fish and wildlife resources in coastal areas by increasing access to existing resources, supplementing existing stocks, and developing new resources. Recreational uses include: (1) consumptive uses such as fishing and hunting;*

and (2) non-consumptive uses such as wildlife photography, bird watching and nature study.

Construction of the proposed Haverstraw Bay crossing would not preclude recreational use of fish and wildlife resources. The project would therefore be consistent with this policy.

Further develop commercial finfish, shellfish and crustacean resources in the coastal area by encouraging the construction of new, or improvement of existing on-shore commercial fishing facilities, increasing marketing of the state's seafood products, maintaining adequate stocks, and expanding aquaculture facilities.

Construction of the proposed project crossing would have no effect on commercial fishing resources or activities in the Haverstraw Bay area of the Hudson River. Therefore, the proposed project would not conflict with this policy.

11) *Buildings and other structures will be sited in the coastal area so as to minimize damage to property and the endangering of human lives caused by flooding and erosion.*

The Project does not entail the construction of any structure in the coastal area, and thus the proposed project will be in compliance with this policy.

12) *Activities or development in the coastal area will be undertaken so as to minimize damage to natural resources and property from flooding and erosion by protecting natural protective features including beaches, dunes, barrier islands and bluffs.*

Construction of the proposed Haverstraw Bay project crossing would not affect beaches, dunes, barrier islands, or bluffs. Where the pipeline is constructed through the shore zone, there will be short-term disruption; however, the construction site will be immediately returned to pre-construction conditions. Therefore, the proposed project would be in compliance with this policy.

The construction or reconstruction of erosion protection structures shall be undertaken only if they have a reasonable probability of controlling erosion for at least thirty years as demonstrated in design and construction standards and/or assured maintenance or replacement programs.

Rock rip-rap or other appropriate erosion control devices will be placed along the shore in the immediate vicinity of the shoreline construction. These devices would help stabilize and protect the shoreline construction area. The placement of shore zone protective devices would be in compliance with this policy.

Activities and development, including the construction or reconstruction of erosion protection structures, shall be undertaken so that there will be no measurable increase in erosion or flooding at the site of such activities or development, or at other locations.

The proposed project includes the placement of rock rip-rap or other appropriate erosion control devices in the immediate vicinity of shoreline construction areas. The proposed shore zone protection will not result in any increase in erosion or flooding at the site or at other locations, and thus the proposed project would be in compliance with this policy.

> *Mining, excavation or dredging in coastal waters shall not significantly interfere with the natural coastal processes which supply beach materials to land adjacent to such waters and shall be undertaken in a manner which will not cause an increase in erosion of such land.*

Dredging and excavation associated with the proposed project is projected to cover a very short time period with the construction site returned to pre-existing conditions following construction. The proposed project would not affect natural coastal processes or increase the potential of erosion from adjacent land. In addition, construction of the proposed project would not involve beaches. Therefore, the proposed project would be in compliance with this policy.

16) *Public funds shall only be used for erosion protective structures where necessary to protect human life, and new development which requires a location within or adjacent to an erosion hazard area to be able to function, or existing development; and only where the public benefits outweigh the long-term monetary and other costs including the potential for increasing erosion and adverse effects on natural protective features.*

No public funds will be used in the proposed project. Therefore, this policy does not apply.

> *Nonstructural measures to minimize damage to natural resources and property from flooding and erosion shall be used whenever possible.*

Construction of the proposed project will include BMPs to minimize damage to natural resources in the project area. No flooding or erosion would result from the proposed project, and thus no nonstructural flood or erosion control measures will be required. Therefore, the proposed project is in compliance with this policy.

18) *To safeguard the vital economic, social and environmental interests of the state and of its citizens, proposed major actions in the coastal area must give full consideration to those interests, and to the safeguards which the state has established to protect valuable coastal resource areas.*

Construction of the proposed project would provide a source of clean-burning natural gas to a large section of New York State, providing vital energy and infrastructure to the State. The proposed Haverstraw Bay crossing is based upon the best available technology and will result in the least environmental impact while meeting all applicable regulations, standards and criteria. Safeguarding social and environmental interests of the state and its citizens is being given full consideration in this consistency evaluation and through the Federal NEPA process. The proposed project would be consistent with this policy.

19) *Protect, maintain, and increase the level and types of access to public water related recreation resources and facilities.*

Construction of the proposed project would not preclude access to public water-related recreation resources and facilities. The project would therefore be consistent with this policy.

> *Access to the publicly-owned foreshore and to lands immediately adjacent to the foreshore or the water's edge that are publicly-owned shall be provided and it shall be provided in a manner compatible with adjoining uses.*

No publicly owned foreshore will be disturbed by project construction activities. Construction of the proposed project would not preclude public access to waterfront land in the project vicinity. Therefore, the proposed project is consistent with this policy.

> *Water-dependent and water-enhanced recreation will be encouraged and facilitated, and will be given priority over nonwater related use along the coast.*

Construction of the proposed project would not materially affect water-related recreation resources and facilities. Therefore, the project would be consistent with this policy.

> *Development, when located adjacent to the shore, will provide for water related recreation, whenever such use is compatible with reasonably anticipated demand for such activities, and is compatible with the primary purpose of the development.*

The proposed project does not include shoreline development; therefore, this policy does not apply.

> *Protect, enhance and restore structures, districts, areas or sites that are of significance in history, architecture, archaeology or culture of the state, its communities, or the nation.*

From 10 to 14 November 1997, Ocean Surveys, Inc. (OSI) conducted a geophysical survey of the proposed gas pipeline crossing of the Hudson River between West Haverstraw, New York and the Franklin D. Roosevelt Veteran's Hospital, Westchester County, New York. The route was 12,242 feet in length and oriented in a southwest-northeast direction (OSI 1997). The investigation involved the collection of digital side scan sonar, hydrographic, seismic reflection profiles and magnetic intensity data in a 2000-foot wide corridor (OSI 1997). This geophysical survey was also used to undertake an underwater archaeological investigation of the Project corridor. On 26 and 27 August 1998, OSI conducted a supplemental geophysical survey of the proposed Millennium route across the Hudson River between Bowline Point and the east shore landfall at the Veteran's Hospital. This survey was focussed on the Bowline Point landfall.

Based on sonar and magnetometer data analysis, there are sonar targets identified in the project area, which may represent either cultural resources, natural material or debris associated with historical to recent occupations in this section of Haverstraw Bay. Ground truthing (ground truthing is an independent in-depth investigation used to verify the cause of or to identify a remote sensing anomaly or target of interest) of these targets of interest will be completed as part

of the recommended Phase II research. On 13 November 2000, a diver walked the entire pipeline route. No structures or other physical features potentially indicative of cultural resources were found. Nevertheless, none of the targets are thought to be significant to the State or the Nation. No buildings or structures of national or historic listing are located within the project area. Therefore, the proposed project is in compliance with this policy.

24) *Prevent impairment of scenic resources of statewide significance. This impairment would include: (a) the irreversible modification of geologic forms, the destruction or removal of structures, whenever the geologic forms, vegetation or structures are significant to the scenic quality of an identified resource; and (b) the addition of structure which, because of siting or scale will reduce identified views or which because of scale, form, or materials, will diminish the scenic quality of an identified source.*

Several portions of the Hudson River waterfront have been identified as "Statewide Areas of Scenic Significance" (SASS) due to their visual appeal, presence of scenic vistas or visible historic structures, or lack of shoreline development. Each SASS area contains a number of mapped subunits recognized for its visual and/or scenic qualities. The project site is not located within any of the NYSDOS-designated SASS areas along the Hudson River. The closest SASS area, Hudson Highlands, terminates at Stony Point (RM 40) more than two miles north of the proposed Haverstraw Bay Crossing.

The coastal zone area, by definition, extends from the shore to the horizon line. On the western side of the Hudson River and to the south of the proposed Haverstraw Bay crossing, the proposed pipeline route would traverse High Tor State Park, crossing over High Tor Ridge, which is the western horizon in the Haverstraw Bay viewshed. The pipeline would be constructed in the existing powerline right-of-way leading over the ridgeline to Bowline Point. The existing right-of-way traverses the ridge at an angle, thus from most visual perspectives, the right-of-way is screened by trees and natural vegetation. No construction or cutting will occur outside the existing powerline right-of-way, thus within a growing season the area will be returned to existing conditions.

One mainline valve would be within 50 feet of the eastern shore of the Hudson River and within the grounds of the Franklin D. Roosevelt Veteran's Hospital, an NRHP-listed site. The valve will be below the viewshed of the lower levels of the Hospital; however, it will be visible from upper floors and from nearby George's Island Park. Millennium is currently completing consultation with the New York SHPO to determine if visual screening of the valve will be required. Construction of the proposed project crossing would not impair this resource of statewide significance, and thus the proposed project would be consistent with this policy.

25) *Protect, restore or enhance natural and man-made resources which are not identified as being of statewide significance but which contribute to the overall scenic quality of the coastal area.*

The proposed project would not adversely impact the overall scenic quality of the coastal area in Haverstraw Bay on either the eastern or western shores. Therefore, the proposed river crossing is in compliance with this policy.

The Haverstraw Bay shoreline is intensely developed with a power generating facility, and a mixture of industrial facilities and marinas. Residences (single family and cluster housing) are visible, to the horizon line, along much of the western shore of the Bay in the project area.

The proposed structure on the Haverstraw Bay shore will be consistent with the surrounding facilities. Visual focal points on the western shore include the trap rock crushing and loading facilities, the Bowline Point Generating Station, and a gypsum processing plant and dock. Several oil terminals and tank farms are also present and visible from the Hudson River. The one proposed building will not be a visual focal point or contrast sharply with existing waterfront uses. The equipment and vessels used for the installation process will not be out of character with the fuel barges, crushed stone barges, and freighters that use the Hudson River and are a visual component of Haverstraw Bay.

26) *'onserve and protect agricultural lands in the state's coastal area.*

The proposed crossing is not located adjacent to agricultural lands Therefore, this policy does not apply.

27) *Decisions on the siting and construction of major energy facilities in the coastal area will be based on public energy needs, compatibility of such facilities with the environment, and the facility's need for a shorefront location.*

The Millennium Pipeline Project is a major energy facility that is entitled to a preference under the CZMA. The CZMA recognizes that major energy facilities are entitled to preferential consideration because of the importance of transmitting energy, particularly natural gas, to markets that are dependent upon energy sources for growth and economic vitality. The Millennium Pipeline Project will satisfy the "public energy needs" of New York State and the Northeast U.S. region in a number of different respects. First, the Project will satisfy growing market demands, as evidenced both by executed contracts for the pipeline's capacity and the forecasts of various experts. Second, the project will supply low-cost Canadian gas supplies to one of the highest-priced gas markets in the United States -- New York. Third, the Project will improve electric power reliability and advance clean air objectives. Fourth, the Project will improve the reliability of gas service to New Yorkers by upgrading the existing natural gas infrastructure through the addition of more capacity, deliverability, delivery points, and interconnections. Fifth, the Project will provide gas producers and gas storage developers in western New York with increased access to markets. These benefits are explained in the sections that follow.

There Is A Clear Need For The Additional Gas Supplies That The Millennium Project Will Bring To New York State

As explained in some detail in Section 2.1, the PSCNY has concluded that there is a clear need for the additional gas supplies to be provided by the Millennium Project. In the PSCNY's opinion, gas demands well in excess of the Project's capacity will need to be served, and the

Project will also improve the reliability, safety, and operations of the state's gas pipeline network.

More generally, it is common knowledge that New York and neighboring states comprise one of the fastest-growing natural gas markets in the United States. Fueled by growing use of natural gas for electric power generation, residential consumption, manufacturing processes, and industrial cogeneration, gas demand in the Northeast is growing at an accelerating rate with the expansion of our economy. Although abundant supplies of natural gas are available in Canada, there is still not enough pipeline capacity available to deliver those economical supplies to customers in New York and elsewhere in the Northeast. The Millennium Project will upgrade the existing interstate pipeline network for delivering energy to the Northeast, where it is needed. In addition, because the Millennium Project will be able to access all of the major gas-producing basins in Canada and the United States, consumers will be provided with an increased diversity of economical supply options. This cost-competitive access to gas supply will produce lower energy costs for homeowners, businesses, and industry.

Evidence of this market demand for the gas transportation services that Millennium proposes to provide along the Southern Tier of New York is most starkly presented in the long-term precedent agreements that Millennium and eight shippers have executed for the firm transportation of most of the capacity of the Millennium Pipeline Project. The pipeline capacity was contracted out to the shippers following a publicly announced "open season" for the submission of bids for capacity, the negotiation and execution of the precedent agreements, and an allocation of system capacity among the shippers after the capacity of the project was significantly oversubscribed. The precedent agreements are with well-established, respected companies in the natural gas industry[4] and are for terms of 10 to 20 years.

2 The Project Will Supply Low-Cost Gas to Consumers In New York – One of the Highest-Priced Gas Markets In The United States

Gas prices in New York State are already well above average. During a period of cold weather in January 2000, gas prices soared to as high as $15 per MMBtu. With a 45% increase in demand predicted, without additional supply, gas prices may further increase. In contrast, lower cost gas is abundant in western Canada. The Millennium Project will serve to deliver lower cost gas to markets all across New York State and to the New York City metropolitan area. As previously noted, the Project would have saved New Yorkers over $100 million in gas costs in January 2001 alone if it had been in operation. Additional supply to New York State will foster

[4] The shippers on interstate pipeline systems are increasingly gas marketers as a result of the unbundling of the services of local distribution companies. While Millennium has executed a precedent agreement with IBM, an end-user which strongly supports the Project, most other end-users that will be served by the Project plan to contract for necessary gas services with one or more of the gas marketers that have contracted for Millennium capacity instead of contracting directly with Millennium. This is the usual industry practice.

competition regarding gas supply. Because it is predicted that approximately two thirds of the cost of energy production relates to fuel, incremental cost savings can be significant to consumers and the economy of New York State. Reduced costs will stimulate New York's economy. Gas supply at competitive pricing is vital to attracting new industry to New York State. The location of the Millennium Project, across the Southern Tier, will help stimulate economic growth, which will benefit all of New York.

3 The Project Will Improve Electric Power Reliability And Air Quality In New York

The current energy policy in New York State is dedicated to fostering competition. As a result, there has been a recent surge in the number of merchant power plants proposed to be fueled by natural gas to compete with power generated by older plants that are less energy and environmentally efficient. Once again, the most significant cost associated with operating such a facility is the cost of gas supply. Many of these facilities are being sited in areas that will depend upon Millennium and others to deliver reliable gas supply at competitive prices. Some of these facilities will be located in areas where multiple sources of gas supply will exist. Fostering competition and gas supply is consistent with New York's energy policy.

New York Governor Pataki announced an initiative to require reductions of NO_x emissions by the power generation industry. On October 21, 1999, Governor Pataki ordered the Department of Environmental Conservation to issue regulations requiring New York's electric generators to cut their nitrous oxide and sulfur dioxide emissions dramatically. Under the Governor's directive, New York's SO_2 emissions would be reduced by 130,000 tons annually and NO_x emissions by 20,000 tons annually. These reductions are intended to reduce acid rain and snow, which are threatening New York's Adirondack and other environmentally sensitive regions.

The Millennium Project could pay a major role in achieving the emissions reductions ordered by Governor Pataki since natural gas yields far fewer air pollutants than oil or coal. The combustion of 1,000 million Btu's of natural gas produces 92 pounds of nitrogen oxides, compared to 448 pounds in the combustion of fuel oil and 457 pounds in the combustion of coal. Similarly, the combustion of 1,000 million Btu's of natural gas produces 0.6 pounds of sulfur dioxide compared to 1,122 pounds for oil and 2,591 pounds for coal. Translated to an annual basis, the Millennium Project's gas supplies would reduce SO_2 emissions by more than 235,000 tons, twice the reduction sought by the Governor's directive, and NO_x emissions by more than 55,000 tons, or almost three times the Governor's objective.

Significantly, the Millennium Project would advance clean air objectives in the State without adversely affecting New York's coastal zone. While the Project would provide infrastructure for economic development where deemed desirable, no gas pipeline capacity has been obtained for the development of new waterfront projects.

4. The Project Will Improve Gas Service Reliability Through Infrastructure Upgrades

More than 86% of the pipeline route will utilize existing utility corridor and easements. In addition, 223.8 miles of existing pipeline that was constructed in the 1950's will be abandoned and replaced with the Millennium Pipeline Project. This is a significant infrastructure upgrade that will be necessary at some point in time even if the Millennium Project is not constructed. As a result of the Millennium Project, a modern, state-of-the art gas pipeline system will be installed across all of New York State, insuring gas service reliability. This will be a significant benefit to New York State, since the energy supply and price problems experienced in New York in January 2000 showed that the addition of new supplies was necessary to maintain reliable services.

5. The Project Will Provide New York Gas Producers And Gas Storage Developers With Access To Markets

The Millennium Pipeline Project will be routed across Chautauqua, Cattaraugus and Allegany counties, in Southwestern New York, which is the area of the State where there are gas production and storage facilities. Gas production facilities require infrastructure to deliver natural gas to market. By upgrading the existing pipeline system, replacing much of that system, and extending the system into these western counties, the Millennium Project would provide a reliable means to deliver gas produced in New York State to markets. Gas storage development in central and western New York State should also benefit from the market access provided by the Project and increase revenue to the citizens and the communities in which these facilities are located.

6. Conclusion

The Millennium Project, as a major energy project, is entitled to preferential consideration under the CZMA. The route from Canada to New York City necessitates a crossing of the Hudson River. Alternative crossing locations have been evaluated and ruled out as being feasible or not preferable due to increased environmental impacts associated with upland areas and increased cost. Given the significant benefits that will accrue to all of the New York State through the development of the Millennium Project and the fact that environmental impacts have been mitigated and, in many cases, eliminated, the Millennium Project is consistent with this policy.

> *Ice management practices shall not interfere with the production of hydroelectric power, damage significant fish and wildlife and their habitats, or increase shoreline erosion or flooding.*

Construction or operation of the proposed project crossing would not require ice management; therefore, this policy is not applicable.

> *Encourage the development of energy resources on the outer continental shelf, in Lake Erie and in other water bodies, and ensure the environmental safety of such activities.*

Construction of the proposed project crossing does not involve development of energy resources on the outer continental shelf, in Lake Erie and in other water bodies. Therefore, this policy does not apply.

30) *Municipal, industrial, and commercial discharge of pollutants, including but not limited to, toxic and hazardous substances, into coastal waters will conform to state and national water quality standards.*

All reasonable measures will be taken to prevent or minimize the discharge of contaminated dredged material, if any, during trenching and backfilling activities.

The New York State Water Classification System classifies Haverstraw Bay as SB. The NYSDEC has three narrative water quality standards for surface waters with this classification:

Taste-,color-, and odor-producing , toxic and other deleterious substances

None in amounts that will adversely affect the taste, color or odor thereof, or impair the waters for their best usages.

2. Turbidity

No increase that will cause a substantial visible contrast to natural conditions.

3 Suspended, colloidal and settleable solids

- None from sewage, industrial wastes or other wastes that will cause deposition or impair the waters for their best usage.

Based on the information presented in Section 3.1.1 and in the response to Policy 8, these narrative standards may be exceeded only in the immediate vicinity of the dredging site and within the visible plume, with the potential exceedance limited to a short period of time. The project has received its Section 401 Water Quality Certificate from NYSDEC, which finds that the pipeline installation would not degrade water quality if specified conditions and monitoring is followed. The project would comply with the applicable permitting requirements. The proposed project crossing would therefore be consistent with this policy.

31) *State coastal area policies and management objectives of approved local waterfront revitalization programs will be considered while reviewing coastal water classifications and while modifying water quality standards; however, those waters already overburdened with contaminants will be recognized as being a development constraint.*

Construction of the proposed project crossing would not affect the water classification or water quality standards in the proposed project area. Therefore, this policy does not apply.

32) *Encourage the use of alternative or innovative sanitary waste systems in small communities where the costs of conventional facilities are unreasonably high, given the size of the existing tax base of these communities.*

Construction of the proposed project would not involve sanitary waste systems; therefore, this policy does not apply.

Best management practices will be used to ensure the control of stormwater runoff and combined sewer overflows draining into coastal waters.

The proposed project would not involve the construction of combined sewer overflows. Therefore, that portion of this policy does not apply. All construction practices in the coastal zone will be undertaken utilizing best management practices to stabilize construction areas and minimize stormwater runoff. Accordingly, the project is in compliance with this policy.

Discharge of waste materials into coastal waters from vessels subject to state jurisdiction will be limited so as to protect significant fish and wildlife habitats, recreational areas and water supply areas.

Construction of the proposed project would not affect discharge from vessels into waters of Haverstraw Bay. Therefore, this policy does not apply.

35) *Dredging and dredge spoil disposal in coastal waters will be undertaken in a manner that meets existing state dredging permit requirements, and protects significant fish and wildlife habitats, scenic resources, natural protective features, important agricultural lands, and wetlands.*

As discussed in Section 3.1.1 and the responses to Policies 7 and 8, the dredging and backfilling operations associated with the Haverstraw Bay crossing will not require the disposal of dredged material. Since there will be no disposal of dredged material as part of the Haverstraw Bay crossing, the proposed project is in compliance with this policy.

36) *Activities related to the shipment and storage of petroleum and other hazardous materials will be conducted in a manner that will prevent or at least minimize spills into coastal waters; all practicable efforts will be undertaken to expedite the cleanup of such discharges; and restitution for damages will be required when these spills occur.*

The proposed project does not involve the shipment and storage of petroleum or other hazardous materials. Therefore, this policy does not apply.

Best management practices will be utilized to minimize the non-point discharge of excess nutrients, organics and eroded soils into coastal waters.

Construction of the proposed project does not involve the non-point discharge of nutrients, organics and eroded soils. BMPs will be used during construction and maintenance activities to minimize non-point source discharges. Thus the proposed project is in compliance with this policy.

The quality and quantity of surface water and groundwater supplies will be conserved and protected particularly where such waters constitute the primary or sole source of water supply.

The proposed project will not affect surface water or groundwater supplies. Therefore, this policy does not apply.

The transport, storage, treatment and disposal of solid wastes, particularly hazardous wastes, within the coastal areas will be conducted in such a manner so as to protect groundwater and surface water supplies, significant fish and wildlife habitats, recreation areas, important agricultural land, and scenic resources.

The proposed project does not involve the transport, storage, treatment or disposal of solid wastes. Therefore, this policy does not apply.

Effluent discharged from major steam electric generating and industrial facilities into coastal waters will not be unduly injurious to fish and wildlife and shall conform to state water quality standards.

The proposed project would not result in the discharge of any effluent from generating and industrial facilities into the waters of Haverstraw Bay. Therefore, this policy does not apply.

Land use or development in the coastal area will not cause national or state air quality standards to be violated.

The proposed project would not result in the violation of any Federal, state or local air quality standards. The potential reduction in marine traffic and congestion related to the delivery of petroleum products to the Bowline Point Generating Station and other Haverstraw Bay industrial facilities would benefit overall air quality in the project area. The proposed project would therefore be consistent with this policy.

Coastal management policies will be considered if the state reclassifies land areas pursuant to the prevention of significant deterioration regulations of the Federal clean air act.

The proposed project would not affect state classifications of land areas. Therefore, this policy does not apply.

43) *Land use or development in the coastal area must not cause the generation of significant amounts of acid rain precursors nitrates and sulfates.*

The proposed project would not cause the generation of significant amounts of acid rain precursors, namely, nitrates and sulfates. The proposed project will deliver a clean burning fuel that should result in the overall reduction of acid rain precursors. Therefore, this policy does not apply.

Preserve and protect tidal and freshwater wetlands and preserve the benefits derived from these areas.

No tidal or freshwater wetlands will be disturbed as a result of the proposed Haverstraw Bay crossing. The project site is north of the NYSDEC limit (the Tappan Zee Bridge) for Tidal Wetlands (Article 25) jurisdiction. There are no state or Federally-mapped freshwater wetlands in the project area.

3.2 Village of Croton-on-Hudson

Description of Proposed Action

The proposed route for the Millennium Pipeline would cross the Hudson River at Haverstraw Bay in Rockland and Westchester Counties, following a 2.1-mile route from Bowline Point on the western side of the Bay to the Veterans Administration hospital property on the eastern-shore (Figure 3, Attachment A-1). The proposed Hudson River-Haverstraw Bay route from Bowline Point to the Veterans Hospital property facilitates Millennium's plans to provide gas service to Southern Energy New York's Bowline Point Generating Station, located on the western shore of Haverstraw Bay in Haverstraw, New York. The proposed route also minimizes pipeline mileage to the proposed terminus at Mount Vernon, New York.

The proposed Route 9/9A alignment is an alternative selected to avoid concerns for the Consolidated Edison's (Con Ed) electric transmission right-of-way (ROW) which was the initial alignment in Westchester County. This alternative would make maximum use of existing corridors in Westchester County, principally public roads, utility rights-of-way, abandoned railroad grades and bike paths. Overall, approximately 86 % of the Route 9/9A alternative uses or parallels these corridors. The use of the Con Ed Row is reduced from approximately 21.9 miles to several crossing totaling approximately 1300-ft (see section 2.6 for a description of special safety issues associated with the Con Ed ROW). In addition, construction along the bike path corridor presents multiple opportunities to improve specific locations along the trailway system as well as enhance the entire corridor.

The SDEIS for the Millennium Project concludes that "the 9/9A proposal is an appropriate route for the proposed deliveries to Mount Vernon, New York". SDEIS at ES-8. Accordingly, this submission includes an analysis of the Route 9/9A Proposal with the Village of Croton-on-Hudson LRRP.

Alternative Routes Evaluated

The Route 9/9A alternative includes a segment along these roadways which brings the pipeline through the Village of Croton-on-Hudson. In meetings with village officials, they stated a preference for an alignment on the west side of the Metro North tracks where the pipeline passes through the downtown area of Croton-on-Hudson. This preferred alignment brings the pipeline in close proximity to the Hudson River shoreline in Haverstraw Bay and through a village park on the shoreline. This alignment is preferred in order to avoid traffic congestion in the village and will permit enhancement of the shoreline park. This area of Haverstraw Bay is Significant Coastal Fish and Wildlife Habitat (see section 3.1). The pipeline also crosses the Croton River, which is designated Significant Coastal Fish and Wildlife Habitat as an upstream extension of Croton Bay. The designated habitat in the Croton River extends upstream to the limit of tidal

influence. The area selected for crossing the Croton River utilizes an abandoned roadway which has an elevated extension across wetlands in the river. This abandoned roadway provides access to the river without encroaching into the wetlands or directly on the riverbank. This location also avoids the scenic gorge upstream on the Croton River.

The pipeline route through the Croton-on-Hudson coastal zone crosses southwest under U.S. Route 9 and the Conrail/Amtrack and Metro North tracks and then proceeds along the edge of Senasqua Park along the south and west side of the Conrail ROW to a point approximately opposite the Senasqua Road interchange with US Route 9. In this segment, the work area encroaches into a small tidal pond between the Route 9 and the railroad tracks and also crosses a small tidal creek which is culverted in the crossing area. At this point, the route crosses back under the railroad tracks, through a small industrial park, through the parking lot for the Metro North Croton Railroad Station, under US Route 9, through the parking lot of a small commercial strip mall, and into the property of Van Cortlandt Manor.

In the Van Cortlandt Manor property, the route crosses an open lot used for overflow parking and recreational events and into the abandoned ROW of old NY Route 9A. The route follows this abandoned highway ROW, which, in this location, is a narrow, elevated strip of land extending out into the Croton River and a wetland area. Millennium proposes to use the directional drill technique to cross this river and wetland complex. The route then follows the old NY Route 9A ROW back to US Route 9 near the NY Route 9A interchange.

3.2.3 Review of Coastal Zone Policy Consistency

There are two coastal zone issues related to the Route 9/9A alternative, the pipeline segment which passes through the shoreline park on Haverstraw Bay and the crossing of the Croton River. The designated significant habitat in Haverstraw Bay is discussed in detail in 3.1 in relation to the effects of crossing of Haverstraw Bay. Both of these issues are addressed below in relation to the coastal zone policies of the Village of Croton-on-Hudson's Local Waterfront Revitalization Program ("LWRP").[5] Millennium will apply for and comply with all local permits related to construction activities.

1) Restore, revitalize and redevelop deteriorated and underutilized waterfront areas for commercial, industrial, cultural, recreational and other compatible uses.

[5] The State CMP provides incentives to local governments to participate with the state in coastal zone management through the development of local waterfront revitalization programs ("LWRPs"), which are comprehensive land and water plans for the coastal areas in the individual municipalities. When an LWRP is approved by the Secretary of State, it becomes an amendment to the state's CMP. In effect, then, the LWRP becomes the policy and standard that must be followed by the local, state and federal government. The Village of Croton-on-Hudson adopted its LWRP on March 16, 1992; the LWRP was approved by the Secretary of State on June 15, 1992 and the U.S. Office of Ocean and Coastal Resource Management on August 17, 1992.

statement saying park will be enhanced.

Millennium will work with the Village of Croton-on-Hudson following certification of this route to arrive at reasonable enhancements to the parkland that will be implemented following construction. In fact, the FERC staff has recommended that the certificate for the Millennium Project include a condition requiring shoreline park enhancements. See SDEIS, Part II at 2-49. Much of the area is deteriorated and underutilized. Reasonable enhancements will restore and revitalize this area, which renders the proposed project consistent with this policy.

1A) *Existing planning and zoning documents should be reviewed and amended where necessary to ensure development within the community is consistent with adopted goals and policies.*

This local policy is not applicable to the pipeline project.

Redevelop and revitalize village owned land at the metro north station, including village garage and bay area. Encourage integrated development of village property to assure fulfillment of requirements relating to parking and accessory uses of metro north train station, while facilitating public access to bay area and recreational use.

The placement of the pipeline through Croton-on-Hudson's waterfront park and adjacent to the metro north tracks is consistent with the local policy because access to the bay area and park will not be inhibited by the pipeline. Reasonable enhancements effectuated during construction will help to revitalize this area.

Every effort should be made by the municipality to encourage the mutual cooperation and exchange of information between governmental agencies involved in clean-up of Croton landfill and metro-north lagoon in order to develop commercial use of resources found in the coastal area.

This local policy is not applicable to the pipeline project.

Require restoration of deteriorating structures related to railroad use and assure appropriate maintenance and screening to reduce visual impact.

This local policy is not applicable to the pipeline project.

1E) *Develop the old sewage treatment plant site at the intersection of Route 9A and Municipal Place.*

This local policy is not applicable to the pipeline project.

2) *Facilitate the siting of water-dependent uses and facilities on or adjacent to coastal waters.*

The placement of the pipeline near the shore of Haverstraw Bay and across the Croton River will have no influence on the future siting of water dependent uses and facilities in Croton-on-Hudson.

> *Expand restrictions on the use of power boats on the Hudson River and Croton River and bay by further enforcing the parameters that regulate boat traffic such as speed, turbidity, safety, and mooring and sludge disposal. Such controls will further increase the compatibility of power boat use with other forms or recreation use within the coastal zone area.*

This local policy is not applicable to the pipeline projects.

3) *The State coastal policy regarding the development of major ports is not applicable to Croton.*

The state coastal policy is deemed not applicable to Croton by the LWRP.

4) *The State coastal policy regarding the strengthening of small harbors is not applicable to Croton.*

The state coastal policy is deemed not applicable to Croton by the LWRP.

5) *Encourage the location of development in areas where public services and facilities essential to such development are adequate.*

The placement of the pipeline near the shore of Haverstraw Bay and across the Croton River will have no influence on the future developments in Croton.

> *When feasible, development within the village should be directed within the current service area of existing water and sewer facilities or in close proximity to areas where distribution lines currently exist.*

This local policy is not applicable to the pipeline project.

> *The extension of water and sewer distribution lines beyond areas currently served should be undertaken cautiously and with prudent regard for village water resources and the preservation of environmental values in undeveloped areas.*

This local policy is not applicable to the pipeline project.

> *Limit proposed development within those portions of the coastal zone boundary area, where traffic impacts such as site distance and carrying capacity of the*

Despite past disturbances and development, Croton River and Bay contains considerable fish and wildlife habitat, and provides an extensive area of shallow estuarine habitat. Extensive areas of shallow bottom create areas of estuarine tidal marshes that contain salinity-tolerant species of submerged and emergent aquatic vegetation, such as saltwater cordgrass, saltmeadow cordgrass, and spike grass.

The shallow estuarine waters create favorable habitat for benthic and epibenthic fauna. The benthic macroinvertebrate infauna (organisms living within the bottom sediments) feed primarily on detritus (organic materials together with associated bacteria, fungus, and other meiofauna). The distribution of macroinvertebrate infauna on a large scale is determined by salinity with polychaete worms being most abundant in brackish water areas such as Haverstraw Bay. Epibenthic fauna live near the surface of the bottom sediments and often migrate up into the water column at night to feed where they function as part of the zooplankton community. In Haverstraw Bay, epibenthic macroinvertebrate collections are typically dominated by mysid shrimp, especially the opossum shrimp (*Neomysis americana*). These benthic and epibenthic populations serve as important food resources for larger macroinvertebrates and many important fish species.

Haverstraw Bay provides nursery habitat for numerous fish species, including striped bass, American shad, white perch, Atlantic Tomcod and Atlantic sturgeon. Other species, including anadromous blueback herring and alewife, move through Haverstraw Bay to upstream spawning areas. Certain marine species, notably bay anchovy, Atlantic menhaden and blue crab, also use Haverstraw Bay as a major nursery and feeding area.

The bald eagle (*Haliaeetus leucocephalus*), a Federal and New York State listed threatened species, utilizes areas of the lower Hudson River estuary, including Croton Bay, during winter months for feeding. The Federal navigation channel is kept open throughout the winter months to allow ships and barges access to up-river ports and terminal facilities. During recent years, primarily as a result of the successful bald eagle restoration activities of NYSDEC's Endangered Species Unit, bald eagles have occasionally been observed along the shore and on ice floes in Haverstraw Bay. Because the Croton Bay pipeline crossing will be constructed during the summer months, there will be no impact to bald eagles in the Croton Bay area. See the response to Policies 7B through 7G for a discussion of impact on significant habitats.

7A) *The quality of the Croton River and Bay significant fish and wildlife habitat and Haverstraw Bay significant fish and wildlife habitat shall be protected and improved for conservation, economic, aesthetic, recreational, and other public uses and values. Its resources shall be protected from the threat of pollution, misuse, and mismanagement.*

Placement of the pipeline near the shore of Haverstraw Bay and across the Croton River will not harm the quality of the significant fish and wildlife habitat in these two areas. The pipeline will pass close to the shore at Haverstraw Bay, but at no point will the construction encroach beyond the riverbank and into the water. The work area at the inland tidal pond and the crossing of the tidal creek will create a minor habitat disturbance. Both areas will be restored following

completion of construction. The crossing of the Croton River will be by directional drilling under the river and adjacent wetlands. The drilling will originate upland from the riverbank and exit on the opposite shore well back from the bank. Although the pipeline will be close to existing wetlands on the north bank, all construction activity will be confined to an abandoned roadway. In addition, as per the SDEIS, Millennium will be required to file a contingency plan for the crossing of the Croton River to protect the sensitive resources of the Croton River in the event that the directional drill is not successful. SDEIS, Part I at 5-14. Accordingly, the project will be consistent with the local policy.

7B) *Materials that can degrade water quality and degrade or destroy the ecological system of the Croton River and Bay significant fish and wildlife habitat and the Haverstraw Bay significant fish and wildlife habitat shall not be disposed of or allowed to drain in, or land within, the area of influence in the significant fish and wildlife habitats.*

Directional drilling involves the use of drilling mud within the borehole. All drilling muds will be contained during and after construction and removed from the site when the drilling is completed. A Directional Drilling Contingency Plan will be prepared for the Croton River crossing to address handling and releases of drilling mud, sealing of abandoned drill holes, and clean up of inadvertent releases. There will be no adverse impact on water quality on the ecological system of the significant coastal habitats, thus the project is consistent with this local policy.

Storage of materials that can degrade water quality and degrade or destroy the ecological system of the Croton River and Bay significant fish and wildlife habitat or Haverstraw Bay significant fish and wildlife habitat shall not be permitted within the area of influence of the habitat unless best available technology is used to prevent adverse impacts to the habitat.

The construction of the Croton River crossing and along the Hudson shoreline will utilize best available technology to contain all materials which could degrade water quality or the ecological system.

Restoration of degraded ecological elements of the Croton River and Bay and Haverstraw Bay significant fish and wildlife habitats and shorelands shall be included in any programs for cleanup of any adjacent toxic and hazardous waste sites.

This local policy is not applicable to the pipeline project.

Runoff from public and private parking lots and from storm sewer overflows shall be effectively channeled so as to prevent oil, grease, and other contaminants from polluting surface and ground water and impact the significant fish and wildlife habitats.

This local policy is not applicable to the pipeline project.

Construction activity of any kind must not cause a measurable increase in erosion or flooding at the site of such activity, or impact other locations. Construction activity shall be timed so that spawning of anadromous fish species and shellfish will not be adversely affected.

Construction activity will not cause erosion or flooding because best management practices that will be as stringent as those required in local regulations will be used to control site runoff. There will be no construction within the water at either location, thus the project cannot directly influence anadromous fish spawning or shellfish.

Such activities must not cause degradation of water quality or impact identified significant fish and wildlife habitats.

The pipeline project is consistent with this local policy. See policies 7A through 7F.

8) *Protect fish and wildlife resources in the coastal area from the introduction of hazardous wastes and other pollutants which bio-accumulate in the food chain or which cause significant sub-lethal or lethal effect on those resources.*

The pipeline project does not utilize materials that would become hazardous wastes which bio-accumulate in the food chain or could cause lethal effects in fish and wildlife. BMP's addressing shore zone and directional drilling construction activities will be prepared and followed during construction. The BMP's will include practices to reduce the possibility for accidental release of small amounts of wastes and materials to the river waters from the construction activities due to poor maintenance and housekeeping practices. Proper lubrication and fueling procedures will be followed with provisions made for leak and spill containment, and diligence will be exercised to oversee waste management practices. These practices will be as stringent as those required in local regulations and will ensure consistency with this policy.

9) *Expand recreational use of fish and wildlife resources in coastal areas by increasing access to existing resources, supplementing existing stocks, and developing new resources. Recreational uses include: (1) consumptive uses such as fishing and hunting; and (2) non-consumptive uses such as wildlife photography, bird watching and nature study.*

The pipeline project will not involve activities which could expand recreational use of fish and wildlife resources in coastal areas, thus this policy is not applicable.

Ensure continued recreational use and public access to the rivers through village-owned land adjacent to the metro-north parking lot, at Croton point park and at Senasqua Park, along the Croton river, and at the Croton Yacht Club. Efforts should be made to encourage recreational use of the fish and wildlife resources found in these areas by increasing the opportunities for public access and enjoyment.

The pipeline project provides an opportunity to enhance the park facilities. At a minimum the existing access and use of the park will be maintained, thus the project is consistent with this local policy.

> *Encourage passive recreational enjoyment of the wildlife in the designated significant fish and wildlife habitats, on the Audubon society sanctuaries, on other public or private lands within the village, where wildlife habitats are located. Encourage the recreational use of areas where such resources are found, as well as the protection of such resources.*

The maintenance of park access and facilities will encourage passive recreational enjoyment of the Hudson River shoreline in Croton and is thus consistent with this local policy.

10) *Further develop commercial finfish, shellfish and crustacean resources in the coastal area by encouraging the construction of new, or improvement of existing on-shore commercial fishing facilities, increasing marketing of the state's seafood products, maintaining adequate stocks, and expanding aquaculture facilities.*

Construction of the proposed pipeline project and Croton River crossing would have no effect on commercial fishing resources or activities in the Croton River or Haverstraw Bay areas of the Hudson River. Therefore, the proposed project would not conflict with this policy.

11) *Buildings and other structures will be sited in the coastal area so as to minimize damage to property and the endangering of human lives caused by flooding and erosion.*

The pipeline project does not involve the siting of buildings or other above ground structures in the coastal zone, thus this policy does not apply.

> *Erosion and sediment control measures shall be undertaken in order to safeguard persons, protect property, prevent damage to the environment, and promote the public welfare by guiding, regulating, and controlling the design, construction, use and maintenance of any development or other activity which disturbs or breaks the topsoil or results in earth movement.*

Best management practices for erosion and sediment control that are as stringent as local regulations will be applied to the construction activities, thus the project is consistent with this local policy.

12) *Activities or development in the coastal area will be undertaken so as to minimize damage to natural resources and property from flooding and erosion by protecting natural protective features including beaches, dunes, barrier islands and bluffs.*

The pipeline project will not alter any natural features which provide protection from flooding and erosion. The land along the pipeline route will be restored to its original elevation after construction is completed.

> *Every effort should be made to protect Croton Point, a natural protective barrier to Croton Bay from activities or development that would increase erosion of or flooding of the point.*

The project will have no effect on Croton Point, thus it is consistent with this local policy

13) *The construction or reconstruction of erosion protection structures shall be undertaken only if they have a reasonable probability of controlling erosion for at least thirty years as demonstrated in design and construction standards and/or assured maintenance or replacement programs.*

The pipeline project will have no effect on any erosion protection structures, thus this policy does not apply.

> *Any bulkheads along the Hudson must be maintained in good condition and private landowners should be required to restore and maintain erosion control mechanisms along their river frontage which are designed for long term stability.*

Where the pipeline is close to the shoreline of Haverstraw Bay, the natural and manmade features of the shoreline will not be disturbed.

14) *Activities and development, including the construction or reconstruction of erosion protection structures, shall be undertaken so that there will be no measurable increase in erosion or flooding at the site of such activities or development, or at other locations.*

The use of BMP for erosion control that are as stringent as those required in local regulations will ensure that there will be no measurable increase in erosion. The project will not involve activities which could increase flooding, thus the project is consistent with this policy

15) *Mining, excavation or dredging in coastal waters shall not significantly interfere with the natural coastal processes which supply beach materials to land adjacent to such waters and shall be undertaken in a manner which will not cause an increase in erosion of such land.*

All project construction activities will be set back from the river banks so that there will be no interference with natural coastal processes, ensuring that there is consistency with this policy.

16) *Public funds shall only be used for erosion protective structures where necessary to protect human life, and new development which requires a location within or adjacent to an erosion hazard area to be able to function, or existing development; and only where*

the public benefits outweigh the long-term monetary and other costs including the potential for increasing erosion and adverse effects on natural protective features.

No public funds will be used in the proposed project Therefore, this policy does not apply

Public funds shall be appropriated for the yearly maintenance of Senasqua Park until such time that is determined that expenditure of funds outweighs the cost of acquiring, constructing and maintaining a similar public park on Croton's waterfront.

This local policy is not applicable to the pipeline project.

7) *Nonstructural measures to minimize damage to natural resources and property from flooding and erosion shall be used whenever possible.*

Construction of the proposed project will include BMPs to minimize damage to natural resources in the project area. No flooding or erosion would result from the proposed project, and thus no nonstructural flood or erosion control measures will be required. Therefore, the proposed project is in compliance with this policy.

Efforts to control erosion along the rivers and on the steep slopes rising from areas inland shall be of a non-structural nature, wherever possible, in consideration of the visual impact of structural measures. The retention or planting of vegetative covers will be preferred to structural measures.

Construction of the proposed project will include BMPs to minimize damage to natural resources in the project area. No flooding or erosion would result from the proposed project, and thus no nonstructural flood or erosion control measures will be required. Therefore, the proposed project is in compliance with this policy.

18) *To safeguard the vital economic, social and environmental interests of the state and of its citizens, proposed major actions in the coastal area must give full consideration to those interests, and to the safeguards which the state has established to protect valuable coastal resource areas.*

Construction of the proposed project would provide a source of clean-burning natural gas to a large section of New York State, providing vital energy and infrastructure to the State. The proposed Haverstraw Bay and Croton River crossings are based upon the best available technology and will result in the least environmental impact while meeting all applicable regulations, standards and criteria. Safeguarding social and environmental interests of the state and its citizens is being given full consideration in this consistency evaluation and through the Federal NEPA process. The proposed project would be consistent with this policy.

19) *Protect, maintain, and increase the level and types of access to public water related recreation resources and facilities.*

The pipeline will pass through Croton's waterfront park on the east shore of Haverstraw Bay. During the anticipated 21-day construction period, access to the portion of the park where construction is taking place will be restricted. Other areas of the park will remain available during this time. Following construction and restoration of park facilities, public access will be re-established to the level it was prior to construction. This route was preferred by town officials in Croton-on-Hudson to avoid impacts to traffic from an alternative route through the downtown area of the village. The project is consistent with maintaining public access to shorefront recreational facilities.

The New York State Department of State ("DOS") has raised concerns regarding whether the State Legislature's approval is needed in order to route the Millennium Pipeline Project through certain municipal parklands in the Village of Croton, New York. The basis for the DOS's concern is the common law doctrine against alienation of certain municipal public lands (including parkland). The general common law rule against alienation of municipal parkland has its basis in the "public trust" doctrine - - i.e., namely that dedicated park areas in New York State are impressed with a public trust, and their use for other than park purposes, either for a period of years or permanently, requires the direct and specific approval of the State Legislature, plainly conferred. Friends of Van Cortlandt Park v. City of New York, N.Y.2d (Feb. 8, 2001); see also United States v. City of N.Y., 2000 U.S. Dist. Lexis 6512 (E.D.N.Y. May 12, 2000); Williams v. Gallatin, 229 N.Y. 248 (1920); Ackerman v. Steisel, 104 A.D.2d 940 (2d Dep't 1984), aff'd on opn below, 66 N.Y.2d 833 (1985); Stephenson v. County of Monroe, 43 A.D.2d 897 (4th Dep't 1974). Ample precedent establishes, however, that (1) under conventional state law principles, the alienation doctrine does not apply to the Millennium Pipeline Project; (2) to the extent the doctrine is deemed to apply, the State Legislature's approval is found in numerous provisions of the Transportation Corporations Law, thus satisfying the doctrine without the need for further state action; and (3) in any event, the doctrine is clearly preempted by federal law.

First, the alienation doctrine is inapplicable, given that only small-scale, very temporary disruption of parkland use will result from construction and operation of the Project. Significantly, recent precedent from the New York State Court of Appeals acknowledges that (1) there "may be de mimimis exceptions from the public trust doctrine;" and (2) under certain circumstances, underground projects with no permanent impact on, or long-term impairment of, parkland use may also be exempt from the doctrine. See Friends of Van Cortlandt Park, supra. However, the Court did not resolve the threshold for, or circumstances under which, these exceptions apply, given (1) the long-term, large-scale nature of the disruption at issue (i.e., more than 5 years of construction, closure of the public golf course for more than 6 years); and (2) the permanent impairment of future uses of the land as parkland resulting from the proposed facility (i.e., alteration of existing gradient, extension of facility roof between 5 and 30 feet above existing grade, above-grade vents and air intake louvers in berms surrounding facility).

By contrast, the Millennium Pipeline Project presents the quintessential example of the type of small-scale, short-term, inconsequential disruption which should, and must, qualify as a de mimimis exception to the alienation doctrine. Underground construction of the pipeline through

municipal parklands in the Village of Croton will take no more than 21 days; thus, the resulting disruption of parkland use due to construction is truly "temporary," as it does not involve a period of years, but only a matter of days. See Friends of Van Cortlandt Park, supra (stating that disruption is not de minimis where "the public will be deprived of valued park uses for at least five years, as plant construction proceeds"); Bates v. Holbrook, 171 N.Y. 460, 465-468 (stating that structures [storage buildings on parkland in connection with a subway project] could not be considered "temporary" when "authorized to remain until the completion of the work" on a project that would take at least three years). Further, the only aboveground "structures" remaining after Project construction will be line markers, which will be designed and located so as not to impair or inhibit, in the slightest, the use of the land as parkland. Compare City of N.Y., 2000 U.S. Dist. Lexis 6512, *1-*29 (holding that construction of underground water filtration/disinfection facilities to be located in public park in Bronx, New York did not constitute an alienation of parkland, where, after construction, the land would be restored to its initial use; distinguishing cases where the subject projects included aboveground facilities geared toward non-recreational purposes); Wigand v. City of N.Y., N.Y.L.J., Sept. 25, 1967, p.21, col. 5 (Sup. Ct., Rockland County) (upholding city's authority to build two underground water storage tanks at Silver Lake Park on Staten Island, without State legislative approval; rejecting the notion that the temporary disruption of parkland by the construction project violated the alienation doctrine; also rejecting the notion that the underground use of the land was an encroachment upon the parkland or a diminution of the parkland for park purposes); see also Friends of Van Cortlandt Park, supra (distinguishing Wigand, supra). Accordingly, routing the Millennium Pipeline Project through parkland in the Village of Croton - - which process will last only 3 weeks and will not at all impair the ultimate use of the land for park/recreational purposes - - does not involve "alienation" of parkland and, therefore, does not require State legislative approval. See Friends of Van Cortlandt Park, supra; see also City of N.Y., 2000 U.S. Dist. Lexis 6512, *1-*29; Wigand, supra.

Secondly, to the extent (if any) that "alienation" of parkland is deemed to occur due to the pipeline project, the necessary State legislative approval has already been given in numerous provisions of the New York Transportation Corporations Law. It is well-settled that state laws of general applicability may authorize the discontinuance of the use of parkland for public park purposes, and that such laws obviate the need for the muicipality to obtain separate State legislative approval for the particular project. See Grayson v. Town of Huntington, 160 A.D.2d 835 (2d Dep't 1990) (upholding alienation of parkland for low income housing project without State Legislature's authorization, based on general authorization in Public Housing Law ' 124), lv. denied, 76 N.Y.2d 714 (1990); Village Green Realty Corp. v. Glen Cove Community Dev. Agency, 95 A.D.2d 259 (2d Dep't 1983) (upholding alienation of parkland for urban renewal project without State Legislature's authorization, based on general authorization in General Municipal Law ' 503-a[4]); see also City of N.Y., 2000 U.S. Dist. Lexis 6512, *26 n.4; Sierra Club v. Bd. of Educ., 127 A.D.2d 1007 (4th Dep't 1987) (construing provision of Buffalo City Charter [which empowered the city to discontinue parkland] to allow city to use part of parkland for public school, notwithstanding N.Y. General City Law ' 20; stating that the Charter provision constituted ample authority for the city's approval of the use of its parkland for a public school), lv. denied, 70 N.Y.2d 612 (1987).

Here, the State Legislature's general authorization for the routing of pipelines through (i.e., in, on, over and under) municipal parkland is found in numerous provisions of the New York Transportation Corporations Law. For example, the State Legislature has granted (1) to pipeline corporations, the power of condemnation, see N.Y. Transp. Corps. Law ' 83; and (2) to municipalities, the authority to convey municipally-owned lands to pipeline corporations, see N.Y. Transp. Corps. Law ' 89 (asserting that "[i]f any lands owned by any county, city or town be required by such [pipeline] corporation for such purposes, the county, city or town officers having charge of such lands may grant them to the corporation upon terms and compensation agreed upon"). Additionally, gas corporations, such as Millennium Pipeline, have been granted (1) the express approval to construct pipelines "in, on, over and under * * * public parks and places in such cities, towns or villages, with the consent of the municipal authorities thereof, and in such manner, and under such reasonable regulations, as they may prescribe," N.Y. Transp. Corps. Law ' 11(3); see also N.Y. Transp. Corps. Law ' 10; and (2) the "power and authority to acquire such real property as may be necessary for [their] corporate purpose and the right of way through any property in the manner prescribed by the eminent domain procedure law," N.Y. Transp. Corps. Law ' 11(3-a). See also N.Y. Transp. Corp. Law ' 11(3-b) (stating that "[t]he construction, use and maintenance by a gas corporation of transmission, distribution and service pipes, conduits, ducts or other fixtures in, over or under any trees, highway or public place, as may be necessary for its corporate purposes, are hereby declared to be public uses and purposes"). Here, the Village of Croton-on-Hudson is willing to consider the construction of the Millennium Project on Village parkland to promote restoration of the parkland. Accordingly, these generally applicable statutory provisions authorize the Village of Croton-on-Hudson to convey an easement to Millennium Pipeline respecting the subject parklands. Compare Grayson, supra; Village Green Realty Corp., supra.

Finally, regardless of the results of the state law analysis, the alienation doctrine is indisputably preempted by the federal Natural Gas Act ("NGA"). See National Fuel Gas Supply Corp. v. Public Serv. Comm'n., 894 F.2d 571 (2d Cir. 1990), cert. denied, 497 U.S. 1004 (1990); Iroquois Gas Transmission Systems. L.P., 52 FERC P61,091, 1990 FERC Lexis 1726, *251, *254 (July 30, 1990); see also Iroquois Gas Transmission Systems, L.P., 53 FERC P61,194, 1990 FERC Lexis 2803, *228 (Nov. 14, 1990). It is well-established that, in general terms, the NGA preempts state and local agencies from regulating the construction and operation of interstate pipelines, including pipeline location. National Fuel Gas Supply Corp., 894 F.2d at 579 (stating that "[a]llowing all the sites and all the specifics to be regulated by agencies with only local constituencies would delay or prevent construction that has won approval after federal consideration of environmental factors and interstate need, with the increased costs or lack of gas to be borne by utility consumers in other states;" also stating that Congress established FERC as a federal body that can make choices in the interests of energy consumers nationally and reasoned that because FERC has authority to consider environmental issues, states may not engage in concurrent site-specific environmental review); see also Maritimes & N.E. Pipeline, L.L.C., 81 FERC P61,166, 1997 FERC Lexis 2406, *20 & *34 (Nov. 4, 1997) (stating that states may not impose conditions that conflict with the FERC's certificates; also stating that if a conflict arises, "the principles of preemption will apply and the federal authorization will preempt the State or local requirements").

Significantly, preemption under the NGA has already been held to (1) bar state law prohibitions against the alienation of publicly-held lands - - namely, State Reforestation Lands ("SRLs"); and (2) apply, notwithstanding that SRLs are accorded the highest level of protection available under state law - - i.e., SRLs are protected against alienation under the New York State Constitution (Article XIV). Iroquois Gas Transmission Systems, L.P., 1990 FERC Lexis 1726, *251 & *254 (involving a pipeline that had been routed through SRLs; noting that Article XIV of the New York State Constitution provides that SRLs "shall not be leased, sold, or exchanged, or be taken by any corporation, public or private;" stating that "[i]n this case, we find that Article 14 of the New York Constitution is undeniably a regulation of a facility used in the interstate transportation of natural gas. Such a provision would certainly delay, if not prevent, the construction [ ] of a federally approved interstate facility. Under the facts of this proceeding, we find, as did the FEIS, that the preferred route comprises the recommended route variations contained in the FEIS"); see also Iroquois Gas Transmission Systems, L.P., 1990 FERC Lexis 2803, *228 (noting that "regulation of interstate transportation [of gas] is an activity with which [FERC] is vested exclusive jurisdiction"). Accordingly, given that the NGA preempts the highest form of State law (i.e., the New York State Constitutional), it certainly must preempt the common law alienation doctrine, or any comparable alienation doctrine rooted in state statutory law.

In sum, for the multiple reasons set forth above, the common law doctrine against alienation of municipal parklands presents no impediment to Millennium Pipeline's acquiring the necessary easement from the Village of Croton-on-Hudson for the routing of the pipeline. Village officials, in recognition of the potential enhancement opportunity for the existing park, and in order to avoid potential traffic problems associated with an alternative route through the village, have consented to this route.

> *Encourage the linkage of open space along the Hudson and Croton rivers in the form of a trail or walkway system. Such systems should be provided along undeveloped and underutilized land as well as along previously developed land.*

The pipeline project does not provide an opportunity to link open space areas

> *Increase physical access to areas that have specific value for their physical and visual access to the Hudson River or Croton River and Bay.*

The pipeline provides an opportunity to enhance park facilities. The specific enhancements will be worked out with village officials. This is consistent with the local policy.

> *Encourage the expansion of public transportation, when feasible, to areas within the coastal zone area where water dependent and water enhanced recreation activities are located.*

This local policy is not applicable to the pipeline project.

> *Increase access to Croton River and bay at the village owned land south of the village parking lots at the Croton-Harmon station.*

This local policy is not applicable to the pipeline project.

Maintain the trail, which provides access to the Croton River waterfront, in its current undeveloped condition as a pedestrian walkway.

This trail will be maintained in its existing condition, thus the pipeline project is consistent with this local policy.

20) *Access to the publicly-owned foreshore and to lands immediately adjacent to the foreshore or the water's edge that are publicly-owned shall be provided and it shall be provided in a manner compatible with adjoining uses.*

See policy statement 19

21) *Water-dependent and water-enhanced recreation will be encouraged and facilitated, and will be given priority over nonwater related use along the coast.*

Construction of the proposed project would not materially affect water-related recreation resources and facilities. Therefore, the project would be consistent with this policy.

See policy statement 19

Boating activities should be encouraged provided that they do not restrict other recreational opportunities and are undertaken in a manner compatible with existing water dependent uses.

This local policy is not applicable to the pipeline project.

22) *Development, when located adjacent to the shore, will provide for water related recreation, whenever such use is compatible with reasonably anticipated demand for such activities, and is compatible with the primary purpose of the development.*

The proposed project does not involve shoreline development which could inhibit water-related recreation. With the potential for park enhancements the project is consistent with this policy.

23) *Protect, enhance and restore structures, districts, areas or sites that are of significance in history, architecture, archaeology or culture of the state, its communities, or the nation.*

The pipeline crossing of the Croton River will be by directional drilling which terminates on the north shore of the river within the Van Cortlandt Manor National Historic Landmark. The construction work will not disturb existing historic structures and the disturbed land will be restored to pre-existing conditions. Prior to construction, activities will be coordinated with the management of the historic site to minimize construction effects on visitors to the site. This coordination has already begun.

The conclusion regarding potential effects on cultural resources is based on information provided by the staff of Historic Hudson Valley, the agency managing Van Cortlandt Manor. A full cultural resources survey is underway, following regulatory requirements for such surveys, to confirm the lack of impact. Should the survey identify currently unknown significant cultural resources, the construction plan would be modified to protect the resources, as required.

> *Prevent impairment of scenic resources of statewide significance. This impairment would include: (a) the irreversible modification of geologic forms, the destruction or removal of structures, whenever the geologic forms, vegetation or structures are significant to the scenic quality of an identified resource; and (b) the addition of structure which, because of siting or scale will reduce identified views or which because of scale, form, or materials, will diminish the scenic quality of an identified resource.*

The pipeline will be underground throughout its route through Croton and the corridor follows existing disturbed land such as roads and railroads. After completion of construction there will be no structures remaining which could impair scenic resources of statewide significance.

> *Protect, restore or enhance natural and man-made resources which are not identified as being of statewide significance but which contribute to the overall scenic quality of the coastal area.*

All areas disturbed by construction for pipeline installation will be restored and revegetated as necessary. The vast majority of the pipeline route through the Village of Croton-on-Hudson is on or adjacent to existing disturbed land such as roads and railroads. After construction is completed, there will be no structures which could intrude on viewscapes. The pipeline corridor will not modify the scenic quality of the coastal area, thus the project is consistent with this policy.

> 25A) *Protect local scenic resources by preventing: (i) The irreversible modification of geological forms, the destruction or removal of vegetation or wetlands, the destruction, or removal of structures, whenever the geological forms, vegetation or structures are significant to the scenic quality of an identified resource; and (ii) The addition of structures which because of siting scale will reduce identified views or which because of scale, form, or materials will diminish the scenic quality of an identified resource.*

The project will not alter any significant geological forms, remove any important vegetation, effect wetlands or remove structures, thus this project is consistent with this policy.

> 25B) *Secure the designation of the panoramic views from Croton Point as a scenic area of statewide significance.*

This local policy is not applicable to the pipeline project

Secure the designation of Route 9 and 129 within the Croton boundaries as a scenic road. Ensure developments on or adjacent to Route 9 do not impair scenic resources or views of or from the Hudson and Croton Rivers.

The placement of the pipeline adjacent to Route 9 would not impair scenic views of or from the Hudson and Croton rivers.

Establish and protect identified viewsheds which provide visual access to the Hudson River, including but not limited to the views of the Hudson River from the western shoreline of the village, and from Prickly Pear Hill, Lounsbury Hill, and river Landing. In addition, protect viewsheds to and of the Croton River and gorge.

As discussed above, the presence of the pipeline in the ground will not impair views of the Hudson River from the village shoreline and views to and of the Croton River and Gorge.

26) *The state coastal policy regarding the protection of agricultural lands is not applicable to Croton.*

The state coastal policy is deemed not applicable to Croton by the LWRP.

27) *Decisions on the siting and construction of major energy facilities in the coastal area will be based on public energy needs, compatibility of such facilities with the environment, and the facility's need for a shorefront location.*

The Millennium Pipeline Project is a major energy facility that is entitled to a preference under the CZMA. The CZMA recognizes that major energy facilities are entitled to preferential consideration because of the importance of transmitting energy, particularly natural gas, to markets that are dependent upon energy sources for growth and economic vitality. The Millennium Pipeline Project will satisfy the "public energy needs" of New York State and the Northeast U.S. region in a number of different respects. First, the Project will satisfy growing market demands, as evidenced both by executed contracts for the pipeline's capacity and the forecasts of various experts. Second, the project will supply low-cost Canadian gas supplies to one of the highest-priced gas markets in the United States -- New York. Third, the Project will improve electric power reliability and advance clean air objectives. Fourth, the Project will improve the reliability of gas service to New Yorkers by upgrading the existing natural gas infrastructure through the addition of more capacity, deliverability, delivery points, and interconnections. Fifth, the Project will provide gas producers and gas storage developers in western New York with increased access to markets. These benefits are explained in the sections that follow. These benefits are explained in more detail in response to Policy 27 in Section 3.1.6.

Construction of the pipeline and Croton River crossing takes into consideration public need and environmental issues. The proposed project has been designed to use the best available construction technology to result in the least environmental impact. The river crossing is

necessary because some of the capacity of the proposed project is planned to be delivered to the east side of the Hudson River, south of the Croton River, at the present time. Therefore, the proposed project is in compliance with this policy.

Ice management practices shall not interfere with the production of hydroelectric power, damage significant fish and wildlife and their habitats, or increase shoreline erosion or flooding.

Construction and operation of the pipeline will not require ice management, thus this policy does not apply.

28A) *Ice management practices must consider short and long term impacts on the Croton River and Bay and Haverstraw Bay significant fish and wildlife habitats.*

See above

29) *The state coastal policy regarding the development of energy resources is not applicable to Croton.*

The state coastal policy is deemed not applicable to Croton by the WRP.

30) *Municipal, industrial, and commercial discharge of pollutants, including but not limited to, toxic and hazardous substances, into coastal waters will conform to state and national water quality standards.*

There will be no discharge of pollutants during and after the pipeline installation in the coastal zone. Millennium amended its NYSDEC 401 water quality certificate to include the Route 9/9A alternative. All techniques used for the Route 9/9A alternative were previously approved by NYSDEC. The project is consistent with this policy.

30A) *Municipal, industrial, and commercial discharge of pollutants, including but not limited to, toxic and hazardous substances, into coastal waters will conform to state and national water quality standards.*

This local policy is not applicable to the pipeline project.

30B) *Storage and Disposal of all materials shall be monitored by the state to assure there will be no discharge or leaching of materials into coastal waters.*

This local policy is not applicable to the pipeline project.

State coastal area policies and management objectives of approved local waterfront revitalization programs will be considered while reviewing coastal water classifications

and while modifying water quality standards; however, those waters already overburdened with contaminants will be recognized as being a development constraint.

This local policy is not applicable to the pipeline project.

Clean water is desired and NYSDEC should continually monitor water quality in the Hudson River and Croton Bay which have already been overburdened with pollutants. Recommendations for mitigation and upgrading water quality classifications cannot be determined without continual monitoring and testing of the waters.

Construction of the proposed project crossing would not affect the water classification or water quality standards in the proposed project area. The Section 401 Water Quality Certification has been issued for the Haverstraw Bay crossing and is expected for the Croton River because directional drilling avoids effects on water supply.

32) *Encourage the use of alternative or innovative sanitary waste systems in small communities where the costs of conventional facilities are unreasonably high, given the size of the existing tax base of these communities.*

The project does not involve sanitary waste systems, thus this policy does not apply.

33) *Best management practices will be used to ensure the control of stormwater runoff and combined sewer overflows draining into coastal waters.*

This project does not involve stormwater runoff and combined sewer overflows, thus this policy does not apply. Best management practices at least as stringent as local requirements will be utilized to stabilize construction areas and manage stormwater runoff.

Encourage new developments to retain stormwater runoff on site so as to not increase flows within the existing system or to improve existing stormwater runoff systems so that runoff from such developments does not impact coastal waters.

This local policy is not applicable to the pipeline project

33B) *Improve existing village stormwater discharge to control flow of pollutants from street and parking areas, etc. directly in the rivers.*

This local policy is not applicable to the pipeline project

34) *Discharge of waste materials into coastal waters from vessels subject to state jurisdiction will be limited so as to protect significant fish and wildlife habitats, recreational areas and water supply areas.*

The project does not involve discharge from vessels, thus this policy does not apply.

There shall be no discharge from moored structures or marine vessels, due to shape of cove and lack of tidal flushing.

This local policy is not applicable to the pipeline project

35) *Dredging and dredge spoil disposal in coastal waters will be undertaken in a manner that meets existing state dredging permit requirements, and protects significant fish and wildlife habitats, scenic resources, natural protective features, important agricultural lands, and wetlands.*

The project will not conduct dredging in the Croton coastal zone, thus this policy does not apply.

36) *Activities related to the shipment and storage of petroleum and other hazardous materials will be conducted in a manner that will prevent or at least minimize spills into coastal waters; all practicable efforts will be undertaken to expedite the cleanup of such discharges; and restitution for damages will be required when these spills occur.*

The project will not involve shipments of petroleum and other hazardous materials, thus this policy does not apply.

37) *Best management practices will be utilized to minimize the non-point discharge of excess nutrients, organics and eroded soils into coastal waters.*

The project will use BMP for erosion control that will be as stringent as those required in local regulations. The non-point discharge of excess eroded soils will be controlled, thus the project is consistent with this policy.

37A) *Standards and specifications for the control of non-point source discharge as set forth in Westchester County's best management practice manual or other recognized reference shall be utilized during development of any site.*

The best management practices will be as stringent as those in Westchester County's manual

Control of the development of hilltops, and steep slopes should be exerted in order to prevent erosion and minimize runoff and flooding from new construction.

This local policy is not applicable to the pipeline project.

38) *The quality and quantity of surface water and groundwater supplies will be conserved and protected particularly where such waters constitute the primary or sole source of water supply.*

The project will not use surface water or groundwater supplies during construction or operation of the pipeline, thus this policy does not apply.

39) *The transport, storage, treatment and disposal of solid wastes, particularly hazardous wastes, within the coastal areas will be conducted in such a manner so as to protect groundwater and surface water supplies, significant fish and wildlife habitats, recreation areas, important agricultural land, and scenic resources.*

The project will not transport, store, treat or dispose of solid wastes of any kind, thus this policy does not apply.

Requires transporters, producers and storers of hazardous materials to inform the public or allow public access to records involving the transport, storage, treatment and disposal of hazardous materials. This is of particular concern with respect to rail transport of such materials, storage of identified materials on railroad property and uses in the waterfront area involved in the treatment, storage and disposal of such materials.

This local policy is not applicable to the pipeline project.

39B) *In accordance with title III, section 302, emergency planning and community right-to know of the 1986 superfund reauthorization act, the local emergency planning committee and the Croton fire department shall be notified if hazardous substances exceed the established threshold planning quantity.*

The proposed project does not involve the transport, storage, treatment or disposal of solid wastes. Therefore, this policy does not apply.

40) *Effluent discharged from major steam electric generating and industrial facilities into coastal waters will not be unduly injurious to fish and wildlife and shall conform to state water quality standards.*

This project does not involve discharges from generating stations, thus this policy does not apply.

41) *Land use or development in the coastal area will not cause national or state air quality standards to be violated.*

The proposed project would not result in the violation of any Federal, state or local air quality standards. The potential reduction in marine traffic and congestion related to the delivery of petroleum products to the Bowline Point Generating Station and other industrial facilities would benefit overall air quality in the project area. The proposed project would therefore be consistent with this policy.

A NYSDEC point-source air monitoring station should be established within the Village of Croton-On-Hudson.

This local policy is not applicable to the pipeline project

42) *Coastal management policies will be considered if the state reclassifies land areas pursuant to the prevention of significant deterioration regulations of the Federal clean air act.*

The project would not effect state classifications of land areas, thus this policy does not apply.

43) *Land use or development in the coastal area must not cause the generation of significant amounts of acid rain precursors nitrates and sulfates.*

The proposed project would not cause the generation of significant amounts of acid rain precursors: nitrates and sulfates. In fact, the proposed project will deliver a clean burning fuel that should result in the overall reduction of acid rain precursors in this region. The project is consistent with this policy.

Encourage the use of shuttle bus service to the train station, thereby decreasing dependency on the automobile use and reduce the generation of acid rain precursors.

This local policy is not applicable to the pipeline project.

Encourage the use of low sulphur fossil fuels for rail vehicles and encourage the development of a monitoring program to assess rail vehicle engines emissions.

This local policy is not applicable to the pipeline project.

44) *Preserve and protect tidal and freshwater wetlands and preserve the benefits derived from these areas.*

The project will not directly affect any tidal and freshwater wetlands in the coastal zone. The project is within the buffer zone along the Hudson and Croton Rivers, but the construction activities will be controlled to minimize erosion and the upland disturbed areas will be restored when construction is completed. The pipeline route in the buffer zones does not involve natural habitats of significant value. The pipeline corridor is through an existing park, along roads and railroads and on an abandoned roadway near the Croton River. The project is consistent with this policy.

Wetlands, water bodies and watercourses shall be protected by preventing damage from erosion or siltation, minimizing disturbance, preserving natural habitats and protecting against flood and pollution.

See above statement